
**“DETERMINING GEO-ECOLOGICAL PARAMETERS
FOR DESIGNING DESHA WISE MAP OF BELGAUM
DISTRICT AND ASSESSMENT OF DESHA WISE
PRAKRITI PREDOMINANCE - A CROSS
SECTIONAL STUDY”**

Thesis Submitted to

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[Declared as Deemed-to-be-University u/s 3 of the UGC Act, 1956 vide
Govt. of India Notification No.F.9-19/2000-U.3 (A)]
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***For the award of the degree of
Doctor of Philosophy
In the Faculty of Ayurveda***

By

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(Registration No: KLEU/Ph.D./ 01216013/2016-17)

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Place:

Signature of the Research Scholar

Dr. Vinod S. Gurav. M.D.(Ayu)

ABBREVIATIONS

AH.	:	Asthanga Hriday
Ag.Pu.	:	Agnipurana
Ar.	:	Anangaranga
Arun.	:	Arundatta
AS.	:	Asthanga Samgraha
A.V.	:	Atharva Veda
Bh.	:	BhelaSamhita
B.P.	:	Bhavaprakasha
B.Pu.	:	Bramhapurana
B.Up.	:	Bramha Upaniṣa
Ca.	:	Ch a r a k a
Cakra.	:	Chakrapani
Ci.	:	Chikitsasthana
Ch. Up.	:	Chandogya Up
Dal.	:	Dalhana
Gang.	:	Gangadhara
G.Pu.	:	Garudapurana
Ham.Ni.	:	Hamsraja Nidana
Hem.	:	Hemadri
H.S.	:	Harita Samhita
Jej.	:	Jejjata
Ka.	:	Kalpasthana
K.Cu.	:	Kandarpa Chudamani
Ke.	:	Kelikutuhalam
Ke. Up.	:	KenaUpaniṣada
K.S.	:	Kashyapa Sam
Ks.	:	Kamasutra
Ma.Kh.	:	Madhyama Khanda
M.N.	:	Madhav Nidan
Na.	:	Nagarsarvaswama
Ni.	:	Nidanasthana

Pa.	:	Panchasayaka
Pu.Kh.	:	Purvakhanda
Rm.	:	Ratimanjari
Rr.	:	Ratirahasya
Rrp.	:	Rati Ratna Pradipika
R.V.	:	Rigveda
Sd.	:	Smaradipika
Sh.	:	Sharirasthana
Sha.	:	Sharangadhara Samhita
Si.	:	Siddhisthana
Srdi.	:	Sringara-rasa-prabandha-dipika
Ss	:	SuprajotpattiShastram
S.	:	Sushruta
Su.	:	Sutrasthana
TA.	:	TaitiryaAranyaka
Ut.	:	Uttarasthana
Utt.	:	Uttaratantra
V.S.	:	VangasenaSamhita
Vi.	:	Vimanasthana
V.Pu.	:	Vishnupurana
Yd.	:	Yashodara
Y.R.	:	Yogaratnakara

ABSTRACT

DETERMINING GEO-ECOLOGICAL PARAMETERS FOR DESIGNING DESHA WISE MAP OF BELGAUM DISTRICT AND ASSESSMENT OF DESHA WISE PRAKRITI PREDOMINANCE - A CROSS SECTIONAL STUDY

BACKGROUND:

Desha is one of the fundamental principles of *Ayurveda*, which refers to the geo-ecological region or habitat.¹ The predominant *DOSHA* at the time of conception decides the *Prakriti* (body constitutions).² It is also determined and influenced by the specific *Bhumi desha* of an individual² and forms one among the major factors to be examined (*Parikshabhavas*) for diagnosing as well as treating disease.^{3,4,5}

The specific type of *Bhumi desha* attributes the specific type of geo-climatic conditions. The predominance of *Dosha* of specific *Bhumi desha* influences *Prakriti* and becomes a risk factor in the manifestation of the particular disease.⁶ Therefore each specific *Prakriti* tends to follow certain lifestyle activities to maintain the predominant *Dosha* in its natural balance and prevent the disease. Hence, *Bhumi desha* plays a major role in determining the *Prakriti* (health and disease) of an individual. Since the geo-ecological parameters explained in the *Ayurvedic* classics for each *Bhumi desha* are very much broad and is not dealt with anywhere and even it is not used in present practice, there is a need for proper identification and mapping of the regions (land or place) into a different *Bhumi desha* and for assessment of the dominant of *Prakriti* of different types of *Bhumi desha*.

Hence the present study has been undertaken as ‘Determining Geo-Ecological Parameters for Designing *Desha* Wise Map of Belgaum District and Assessment of *Desha* Wise *Prakriti* Predominance - A Cross Sectional Study’

OBJECTIVES:

- Development of geo- ecological parameters for demarking different *Bhumi Desha*.
- Designing *Desha* wise map of Belagavi District.
- To study *Deha Prakriti* predominance in different *Bhumi desha* of Belagavi District

MATERIALS AND METHODS:

Source of Data: Different *Bhumi desha* of the Belgaum district.

Study design: A Cross-sectional Study.

Methodology:

A pre-designed and semi-structured (Annexure 1) research data sheet were prepared by considering the maximum specification of particular *Bhumi desha* explained in the classics. A total of 30 different geographical regions (Table no 1) of predominance having a particular type of *Bhumi desha* were visited personally along with geologists. Final assessment parameters (Annexure 2) were developed and the Belgaum district was identified into different types of *Bhumi desha* as *Janagala* (Arid Land), *Anupa* (Marshy Land) and *Sadarana* (Mixed type of Land) *desha* mainly based on the type of vegetation. Later by taking high-resolution Google earth App around 108 places were identified as *Jangala desha*, 41 were as *Anupa desha* and 107 were as *Sadarana desha* In this way, a total of 256 different types of *Bhumi desha* were identified and included for the present study. The QGIS version 3.18.1 was used for the sampling locations maps and *desha* wise of these different types of *Bhumi desha* and demarked by using different symbols (such as dots, triangle and stars) colors (brown, yellow and light blue) respectively. 15 different geo-geographic regions of the

Belgaum district were selected by the Random sampling method (Lottery method) by choosing 5 regions from each *Bhumi desha*. The relevant standard Questionnaire proforma was used for the assessment of *Prakriti* of 4767 subjects and the interrelation between *Bhumi desha* and *Prakriti Pradhanata* was assessed.

OBSERVATIONS AND RESULTS:

The Geo-ecological parameters distinguished for a specific *Bhumi desha* arranged for the most part on vegetation types, etc. have been recorded at each spot mulling over 100 square meters. The location and *Bhumi desha* wise maps were designed for Belgaum district. The overall percentage distribution of *Deshas* is *Jangala desha* 67.22% (9090.82 Sq.mts); *Sadarana desha* 21.86% (2956.45 Sq.mts) and *Anupa desha* 10.91% (1475.30 Sq.mts).

In the present study, 1039 (21.8%) respondents of *Anupa desha*, 2277 (47.8%) of *Jangala desha* and 1451 (30.4%) of *Sadarana desha* were assessed for *Pradhana Prakriti* from the different geo-geographic regions of the Belgaum district. The maximum number of subjects i.e. 55% of *Kaphadikya* were found in *Anupa desha*. 76% of *Vatadikya* in *Jangala desha*. 34% of *Vatadikya* and 30% of *Samadhatuja* were found in *Sadarana desha*.

CONCLUSION:

- Considering the maximum specification of particular *Bhumi desha* explained in the classics and based on the type of vegetation the Geo-ecological parameters were developed for designing *Bhumi desha* wise map of Belgaum district.
- The designed *Bhumi desha* wise map of Belagavi District showed all the types of *Bhumi deshas*. The overall percentage distribution of *deshas* is *Jangala desha* 67.22% (9090.82 Sq.mts); *Sadarana desha* 21.86% (2956.45 Sq.mts)

and *Anupa* 10.91% (1475.30 Sq.mts) indicating *Jangala desha* is more predominance compared to other two *deshas*.

- The higher the proportion of *Vata pradhana Prakriti* was found in *Jangala desha*, *Kapha pradhanan Prakriti* in *Anupa desha* and *Samdhatuja Prakriti* in *Sadaranan desha*.

Keywords: *Bhumidesha; Anupa; Jangal; Sadarana; Geo-ecological; Mapping; Belgaum District; Prakriti.*

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1. INTRODUCTION

1.1 Background of the study:

Ayurvedic principles of health were established on proper observation and scientific foundations. The study of human beings concerning the environment is possible only when both environment (i.e., *Bhumi desha*) and human beings are considered at a time, as the environment is a very important matter in concern with maintenance of health⁷. Hence the identification of individuals *Desha* (place/environment) in which the individual stay is need of the hour to apply clinical applications.

The influence of environmental factors on biological system of humans is significant in determining the health as well as mortality. The irregular distribution of health and disease was realized since earlier times; however, a recently coined term, 'medical geography', has been helpful in re-establishing the fact of diffusion of different diseases in various geographical location⁸. The timely prevention of environmental obstacles in the process of maintaining health has also been appreciated to a certain extent. Ayurveda is a holistic science and influence of geographical factors is well documented in the classics. *Janapadodhwamsa*^{9,10}, highlights *desha* as an important environmental factor responsible for the causation of epidemic diseases, and has its origination with respect to quality of vegetation, water source, type of mud, animals & birds, variety of crops and the intensity of sunshine in that area.

Of the few geographical factors, latitude is one where the sunstrokes and heat exhaustion are highly observed in the tropical regions. Likewise, frost-bite and trench feet are commonly seen in the colder regions of the world. It is well known that

oxygen deprivation occurs at higher altitudes and is a risk for cardiac patients. On the other hand, this mechanism is compensated in healthy individuals and health is maintained. It also aids in stimulation of muscular growth, thereby enhancing the strength of individuals. Owing to the differences in diet, clothing etc. amongst various races, Jews happen to be more susceptible to Diabetes than other races. Diseases due to vitamin deficiencies are predominant in people whose diet lacks variety due to lack in soil potency. Scurvy is another deficiency disease which results from the exclusive eating of preserved foods, where vegetation is scanty. The growth of parasites, from animal and vegetable, largely depends on the geographical and climatic factors of a particular region and very much contributes to health and diseases. The tropics have a very rich vegetation; thus, the warmth and moisture favor the survival of the organisms like in case of measles. The agents that cause scarlet fever thrive best at low temperaments, and are destroyed by the high temperatures prevalent at the tropics. High altitudes like Switzerland are often very free from germ diseases due to the lower temperature and lessened diffusion of infection. The germs of certain diseases can escape destruction for varying periods by being contained in some medium other than the air. Water is very important in this respect, and is often responsible for the spread of diseases like typhoid, cholera and dysentery¹¹ Thus, the geographical factors play an important role in the distribution of diseases, thereby, influencing the human health and ailments¹².

Ayurveda elaborates *Jangala desha* (dry land), *Anupa desha* (wet land) and *Sadarana desha* (intermediate land) as the types of *Bhumi desha* found in classics according to its particular features and ecological status^{13,14}. *Bhumi desha* influences the constitution of predominance of *dosha* in the formation of *Prakriti* (body constitution) during conception^{15,16}, which intern influences the manifestation and

cause of diseases and also the response to treatment in an individual. The knowledge of *Bhumi desha* (geographical land/ habitat) forms one amongst the concepts of *Pareekshya bhavas*^{17,18} that every individual should be analysed for *Desha* and *Prakruti* while determining the curability, prognosis and scheduling treatment¹⁹. The residents of *Balhika* and *Sourastrika* are habituated for excessive use of *lavana* which produces fatigue, lassitude, and weakness in the body²⁰. The animals of *Anupa desha* (*Kapha dosha pradhana desha*) are *guru* in nature and heavy for digestion causing like *amajanya vyadhi*; while those of *Jangala Desha* (*Vapha dosha pradhana desha*) are of *laghu* in nature and increases lightness in the body resulting in increased *vata dosha*²¹. The water of *Jangala* and *Sadharana desha* is healthy and tasty, light to digest, produces happiness and provides good strength. *Anupa desha* water is *guru* in nature, increases the *deha snigdhatva* and is not suitable for health²². *Shlipada* is the one such disease produced by stagnated water found in *anupa desha*²³⁻²⁹

Not just the ill health, but the curability of diseases also depends upon the *desha*. In the treatment of *amlapitta*, on failure of drug therapy, *Acharya* explains relocation of the patient to favorable *desha*³⁰. The drugs available in particular vicinities are useful for individuals belonging to the same type of *desha*. *Acharyas'* have also explained that the potency of drugs depends upon the place of cultivation, time of collection and their proper preservation; like the herbs grown in *Vindya* Mountains are *laghu* and *ushna* while those in Himalayan range are *guru* and *sheeta*. The other herbs found in forests also have the potency based on the prevailing ecological conditions. Thus the qualities of particular place reflect in the plantation^{31,32}. The severity of the disease is reduced when *dosha* originated in one *desha* shift to other (eg. *dosha* originated in *Anupa desha* lose their severity when shifted to *Jangala desha* and vice versa). Also, the diseases produced in a particular

desha are easily curable in comparison to those in the opposite type of *desha*. Each *desha* holds inbuilt qualities which affect the *prakriti* of an individual. Thus the knowledge of *Desha* and *Prakriti* of individuals of a particular *desha* helps in curability of diseases^{33,34}. This concept is said to provide fulfillment of "*Swasthasya swasthya rakshanam*" and "*Aturasya vikara prashamanam*" which forms the prime goal of Ayurveda^{35,36}

According to the 2011 Census of India, Belgaum district had a population of 4,779,661, across an area of 13,415 square kilometers. The district is divided into three agro-climatic zones based on rainfall pattern, soil types, quality, depth and physicochemical properties, altitude, geography, major crops and type of vegetation.

As the pathophysiological activities of the body corresponds to *Desha* and *Prakriti*, there is a need for proper identification, categorizing and mapping the regions of Belagavi district in terms of *Desha* (*Jangala Desha*, *Anupa Desha*, *Saadhaarana Desha*), using the existing geo-ecological parameters. The population then, shall be assessed for the *Prakriti* identification through standard Ayurveda parameters. Furthermore, to determine the health and disease of an individual, the concept of *Desha* and *Prakriti* can be brought into regular usage in clinical practice and the outcome might be supportive in validating the fundamental applications of *Ayurveda*.

OBJECTIVES OF THE STUDY:

- Development of Geo- ecological parameters for demarking different *Bhumi desha*.
- Designing *Desha* wise map of Belagavi District.
- To study *Deha Prakriti* predominance in different *Bhumi Desha* of Belagavi District

1.2 LITRATURE REVIEW

The concept of *Desha* (the geographical area or habitat) is one of the fundamental principles explained in Ayurveda which has a prime role in the examination of disease as well as a diseased person.⁴ The division of geographical areas depending upon the climatic conditions appears to be more scientific. We often come across tropical diseases which are challenging medical science today and these can be prevented and managed by bringing the normalcy in *Prakriti* of an individual by adopting the proper diet and lifestyle in accordance to the climatic conditions (*Bhumi desha*). Therefore, the understanding of the particular *Bhumi desha* and *Prakriti* of an individual is essential and necessary in the management of the diseases.³⁷

In *Ayurvedic* classics, the word *Desha* is formed by '*disha*' *dhatu* and '*ghain pratyaya*³⁸ which means the particular place. It is also termed as *Bhu, Dhara, Dharitru, Dharani, Kshithihi, Aasa, Kukubha, Upavarthana, Vishaya* and *Nivrutta*.³⁹⁻⁴³ *Desha* has been classified into two types – *Bhumi desha* (the natural geographical land or inhabitant of an individual) and *Atura desha* (the *Deha desha*⁴⁴ i.e. the body itself) which is to be examined to know the lifespan of the patient (*Ayu*), the immunity or strength (*Bala*) and status of the disease (status of *dosha*) for effective implementation of treatment. It is the *Karya desha*.

Further, the *Bhumi desha* is sub-classified into three categories⁴⁵⁻⁴⁹ i.e.

1. *Jangala desha* (Dry land)
2. *Anupa desha* (Marshy land)
3. *Sadarana desha* (Normal land)

CHARACTERS OF DESHA:

*Jangala desha*⁴⁵⁻⁵⁵ - is the arid land (had less water source), mostly predominant of the empty sky (*Paryakasha Bhuyestha*), cloudy sky, fast-moving of air (*prachura vayu*) too much of hot and summer (*Prachura atapa*). The area is dry, rough, sandy, dusty and irregular. These areas had many variety cactus and milky latex plantations. We see a large quantity of vacant/empty land which causes the appearance of the mirage (*mrigatrishnika*). There is less water found which is tasty and healthy. Thus, it is stated as '*marbhumischya arogyadeshanam*^{56,57} healthy land to live. People have a long span of life. They generally suffer less and from diseases caused by *vata-pitta*,⁵⁸ like *pakshaghata* and *sandhigata vata*.

*Anupa Desha*⁴⁵⁻⁵⁵ - It is predominant of *kapha dosha* - marshy land with more water, more vegetation, and less heat, scarcity of air and sunshine(*duralbha atapa*). The climate in such lands causes many *doshas* (bodily disorders) as sun shine reach rarely to ground because of thick forest. The persons inhabiting such land were suffered from *vata-shlesmaja vydhies*.⁵⁸ Like *sleepada*, *galaroga*, *apache*, *jwara*, etc. The medicines and food items contain heaviness (*ahara and aushadhis are guru yukta*) in them. It is stated as '*anupo ahitodeshanam*^{56,57} unhealthy land to live.

*Sadharana Desha*⁴⁵⁻⁵⁴ - The mixed type of plantation were seen. Normal land had mixed colour soil, which neither moist nor dry, which is intermediate land having combination *Anupa Desha* and *Jangala Desha* and had balanced state of *doshas* and it is reflected in their *prakriti*. Also had moderate vegetation and is said to be a good habitat for people. It is regarded as *Sadaranaguna* and *Doshayukta*^{56,57}

**GEO-ECOLOGICAL AND AGRO-CLIMATIC PARAMETERS IN
RELATION TO *DESHA*:**

Indian climate varies from place to place. The most acceptable classification is given by Koppen and Trewartha.^{19,55,59,60} It is based on the amount of vegetation, rain fall, the temperature of a particular place as a distinctive and significant variable determining the climatic features which are six groups, viz; Tropical Humid climate, Dry climate, Subtropical Climate, Temperate climate, Boreal climate and Polar climate (K.R. Bhavana et al. AYU Oct-2014).^{19,61}

These classifications were correlates according to classics as, *Anupa desha* (Tropical rain forest), *Jangala Desha* (Tropical desert) and *Sadarana desha* (subtropical steppe).^{29,30}

According to the 2011 Census of India, Belgaum district had a population of 4,779,661, of which 24.03% live in urban areas, making it the second-most populous district in Karnataka. It is bounded on the west and north by the state of Maharashtra on the northeast by Bijapur District on the east by Bagalkot District on the southeast by Gadag District on the south by Dharwad District and Uttara Kannada districts, and on the southwest by the state of Goa (*Belgaum district Geological survey report of 2017*).⁶²⁻⁶⁴

The Belgaum district has an area of 13,415 square kilometers. The district lies between 15°00" and 17°00" north latitudes and between 74°00 and 75°30" east longitudes. Belgaum district has been divided into three agro-climatic zones based on rainfall pattern, soil types, quality, depth and physicochemical properties, altitude, geography, major crops and type of vegetation (*Belgaum district Geological survey report of 2017*).⁶²⁻⁶⁴

Agro-climatologically the district can be divided into three zones “Northern dry zone”- *Maidan region*- which is plane land, covering Athani, Raibag, Gokak, Ramdurg, and Soundatti talukas of the district; “Northern transitional zone”- *Semi malnad*- which is intermediate land, covers the area to the West of Belgaum, north-western part of the district and also the eastern part of Khanapur Taluk and “Hilly zone”, - *Malnad region*- which is a hilly region, covers South – West of Khanapur taluka. (*Belgaum district Geological survey report* of 2017). Thus, Belgaum District covers a variety of climatic conditions including hilly regions to *maidan* region.⁶²⁻⁶⁴

In the present study, the selection of each *Bhumi deshas* was incorporated mainly based on vegetation and longitude, scope, soil type, rock type, water source (well, bore well, lakes and so on.) and level of water accessibility, crops, temperature, wind, mugginess, number and assortment of trees, kinds of leaves, sort of land (plane, uneven, rough and so on.), region of open space, from Mobile Accu-Weather android app with GPS and with a computing device have been recorded at each spot mulling over 100 square meters area for 100%.

Anupa Desha:⁶²⁻⁶⁶

The *Anupa Desha* had a thick amount of vegetation. The Jamboti, Kusumali, Shirolu, Bhimagad, Manturga, and Tivoli had thick forests and the plantation was big and tall. These areas lie in a thick forest of Western Ghats of Belgaum district of Karnataka state. According to the classics *Anupa Desha* has dense forests of *Hintala* (Date palm), *Tamtala* (*Garcinia* sps.), *Narikela* (Coconut tree) and *Kadali* (Banana tree) plants.

The land is intercepted by rivers (Malaprabha river near Jamboti), water streams having *Vanjuala and Vanira* (willow) plants on banks. It is adorned with hills

(hills of Kusumali, and Kanakumbi were the highest peak) and bowers abounds in trees attended by a mild breeze. The region is full of rows of flowering plants which were abundant.

In the places of *Anupa desha* having the maximum amount of water sources and body. Lakes, rivers, pound, well and bore well were full of water. A river *Malaprabha* cross through these areas. Meteorological conditions (weather) is soft and moist and people living were had smooth & soft skin, good body built. Classically *Anupa Desha* had *Prachura Udka & Varshayukta*.

Similarly, the Indian meteorological department and district geography report of Belgaum district reveals that the rain falls ratio maximum of 1859 mm of rain found in wet land (Khanapur taluka).³¹ (**Belgaum district Geological survey report of October 2017*).

In the southwest regions of (Nerse, Jamboti, Dongaragav, Londa and Godholi) Khanapur taluka, the intensity of the temperature (sun) is less because of tall and heightened forest and had much humidity, due to this person used to perspires and had soft skin. According to the *Belgaum district Geological survey report of 2017*, the intensity of the Sun is on average 29⁰C and minimum 14⁰C. The relative humidity was 80-90% were recorded. The humidity is 32% found in high and hilly land places. (Jamboti and Bhimgad of Khanapur Taluka of Belgaum district).

The wind is of cold and breezy (13km/hrs) in wet land areas (*Anupa desha*).

Similarly, B. K. Purandara et al (2019) states that the climate is wet (Sub humid to Humid) in Khanapur Taluka and parts of Belgaum Taluka, It observed that hydraulic conductivity in a sub-humid zone is significantly higher than in semi-arid

zones. Finally, it determines that the Belgaum district had a variety of climatic conditions depend upon its geo-ecological parameters.³³

Red and dark brown colour soft mud and had small tiny stones in forest regions of *Anupa Desha*. Dr Mithya et al, stated that wet/marshy land (*Anupa Desha*) had *Tamra Bhumi* and according to *panchamahabhuta* relations, the *Partheeva Bhumi* and *Jaleeya Bhumi*.

Anupa Desha had duck, dear, snakes (king cobra), buffalo, pigs, tigers, bears and elephants (as local people seen in their fields usually). Classically *Shash* (rabbit), *Varaha* (pig), *Mahisha* (buffalo), *Khadga* (rinosorraous), *Ruru* and *Rohi* (types of dears), with different variety of *Jala-mruga*, and *pradhan mruga*.

The major crops were paddy/rice, banana plantations and sugar cane. Classically it had *Shali Dhanya*, *Kadali* and *Ikshu* were abundantly.³² Khanapur taluk had The principal crops as rice (paddy), sweet potato and pulses. (Agro-climatic zones of the Belgaum district-agronomy 2014-15).³⁵

Jangala Desha:⁶²⁻⁶⁶

Where as in the north and east parts of Belgaum district, viz, Athani , Raibag, Ramdurga, Savadatti, Gokak and parts of Bailhongal talukas, were having less vegetation with a thorny plant like *babul*, cactus, etc having small-sized, non-juicy leaves and had milky latex. We have also seen much open space around Athani, Gokak, Ramdurga and Savadatti taluka. According to classics *Jangala Desha* had *Kadara* (Acacia species), *Khadira* (Acacia catechu), *Asana* (Terminalia tomentosa), *Aswakarana* (Dipterocarpus alatus), *Dhava* (Anogeissus latifolia), *Tinisa* (Desmodium oojeinense), *Sallaki* (Boswellia serrate), *Sala* (Shorea robusta),

Somavalka (*Acacia polyacantha*), *Badari* (*Ziziphus mauritiana*), *Tinduka* (*Diospyros malabarica*), *Aswatha* (*Ficus religiosa*), *Vata* (*Ficus benghalensis*), *Amalaki* (*Emblica officinalis*), *Sami* (*Prosopis cineraria*), *Kakubha* (*Terminalia arjuna*) and *Simsapa* (*Dalbergia sissoo*).

Many stony hills were existing near Toragal, Ramdurga and Savadatti places of Belgaum District.

The places of *Jangala desha* had fewer water sources and water bodies. The people were depending upon bore well water and more bore well were found in these regions, but water is scarce in them. Only places beside the banks of river having source of water in these places and these were only had water during rainy seasons and remaining time they are empty. As two major rivers passing through these *Jangala desha* namely *Ghataprabha* and *Krishna* rivers. *Jangala Desha* had *Alpa paniya*, & *alpa Varshya yukta* and similarly, the Indian meteorological department and district geography report of Belgaum district (2017) reveals that the rain falls ratio 503 mm found in dry land (Savadatti taluka).

The Kokatnur of Athani taluka, Udikeri of Savadatti taluka having intense sun and mirage and almost all dry land (Inchal, Devalapur, Murgod) and less humidity. According to the *Belgaum district Geological survey report* of 2017, the intensity of the Sun on average 32⁰C and maximum of 40⁰C which causes the reduction in the vegetation. The relative humidity was 35-70% (average 27%) thus intense heat and mirage were common. It had hot, coarse and dry wind. The people had dry skin, thin and stout bodies built, cracked feet and palms.

Similarly, B. K. Purandara et al (2019) states that the climate is Semi-arid in the following talukas of the Belgaum district. (Hukkeri, Athani, Raibag, Chikkodi, Saundatti and Bailhongal). It observed that hydraulic conductivity is significantly lesser in semi-arid zones. Finally, it determines that the Belgaum district had a variety of climatic conditions depend upon its geo-ecological parameters.

The *Jangala Desha* were had ash and blackish colure land along with sand, gravel and stony hills. (Torgall and Katkol area of Ramadurga taluka; Gokak falls of Gokak taluka and Jainapur of Chikkodi taluka). Dr. Mithya et al, stated that *Akashiya Bhumi* and *Vayaviya Bhumi* were found in this arid region (*Jangala desha*) and they have sandy, rough ash and greyish black colored soil and having holes in the soil.³⁴ Lean and small trees which grow near rock mountains were abundant. Xerophytes were more seen in this type of soil.

Jangal desha had cow, goat, dogs, donkey, peacock, small-sized birds like sparrow etc. In (dry land) *Harina, Ena, prasta, gokarnam, khara, chataka, vaanar* (monkey), *gou* (cow), *manushya* (stout human being), *Gavaya* (type of cow), *maheesha* (buffalo) and *Aja* (goat) were found classically, which were almost similar to present day.

Mainly Maize, Jawar and Sajje were present in *Jangala, Desha* similarly *Mudga, Yava* and *Vrihi* were explained in classics. The Chikkodi, Hukkeri and Bailhongal talukas, of Belgaum district, richly grew the crops like Jowar, Groundnut, Pulses, Sugarcane and Tobacco. (Amruta rani et al. 2014).

Sadarana Desha: ⁶²⁻⁶⁶

Moderate vegetation was present in native Belgaum, Hukkeri, parts of Khanpur, and Bailhongal talukas. According to classics, here small *vanaspati* and *vanspatya* are seen.

Sadarana Desha had *Sama/ madhyama udaka* and *varsha yuktha*.

The moderate heat present in Hukkeri and Belgaum province. According to the *Belgaum district Geological survey report* of 2017, the intensity of the Sun is on average 36⁰C and minimum 14⁰C. The humidity was 60-80% which is moderate comparatively other two *Desha* and causes moderate perspiration.

Intermediate (*Sadrana Desha*) land had Moderate wind (11- 16 km/hrs).

The *Sadarana desha* had mixed colour (Black and brown) *mud*, (Black and red colour mud in almost all parts of Belgaum taluka and blackish colour mud in Hukkeri, Bailhongal and parts of Khanapur taluka). Similarly, *Sadarana desha* had *Partheeva Bhumi*, *Akasheeya Bhumi* and *Agneya bhumi*. (Dr Mithya et al. KAHER-2012).

Wheat, Barley, sugar cane, many vegetables cabbage, cauliflower, beans, methi, carrot, radish etc were usually grown in *Sadarana Desha* and classically *Godhooma* and *Yava* were abundantly present.

Latitude and Longitude:

Latitude and longitude divide Belgaum district into three geographical areas as *Anupa Desha* (marshy land), *Jangala Desha* (dry land) and *Sadarana desha* (intermediate land).

Marshy land lies between Longitude- < 74.4705785 South & latitude- <15.6947622 West; Dry land lies between Longitude- > 74.5228815 North & latitude >15.8049607 East and Intermediate land lies between Longitude- 74.4966602 to 74.7703032 North & latitude- 15.8920783 to 16.2950963 East.

Table No. 1.2.1: Classical agro-climatic features in relation to *desha*:⁴⁵⁻⁴⁶

FEATURE	JANGALAL	ANUPA	SADARANA
Vegetation Type	Thorny, (<i>khadir, babul</i>) Small leaves Shrubs Non Juicy	Non Thorny (teak wood, mango) Big Leaves Big trees Juicy	Mixed
Vegetation Area of Coverage	Scanty	Maximum	Moderate
Area/ Regions	Stony and sandy	Hilly	Plane
Water source/ rain ratio	Less (<i>Alpa paniya & varsha</i>)	More (<i>Prachura udaka & varsha</i>)	Moderate
Type of Mud	Blackish/Ash (<i>Dhusara Bhumi</i>)	Red / dark brown (<i>Tamra Bhumi</i>)	Brown & Black (<i>Nanavarna Bhumi</i>)
Crops	Maize, Jawar,	Rice (<i>Shali</i>), Banana (<i>Kadali</i>),	<i>Godhooma</i> , Ground Nut, <i>Ikshu</i> ,
Sunlight / Temperature	Intensive, usually mirage seen, more heat	Mild/ less heat, scarcity of sunshine.	Moderate
Wind	Dry	Humid	Normal

Table No. 1.2.2: Agro climatic zones of Belgaum district & Correlation between Ayurvedic and contemporary concepts of geography⁶³

Ayurveda	Contemporary	Average Rainfall Ratio	Agroclimatic zones	Regions
<i>Anupa Desha</i>	Tropical rain forest	1859mm	Hilly zone - Malnad region	Hilly region, covers South – West of Khanapur taluka.
<i>Jangala Desha</i>	Tropical desert/semiarid steppe	503mm	Northern dry zone - Maidan region	Athani, Raibag, Gokak, Ramdurg, and Soundatti talukas of the district
<i>Sadarana Desha</i>	Tropical and sub tropical steppe	761mm	Northern transitional zone - Semi malnad-	Area to the West of Belgaum, north-western part of the district and also the eastern part of Khanapur Taluk

Table No. 1.2.3: Agro climatic zones of Karnataka state & Correlation between Ayurveda and contemporary concepts of geography ^{19, 59-63}

Ayurveda	Modern view	Rain fall Ratio (cm)	Temperature	Region in India	Region in Karnataka
Anupa Desha	Tropical rain forest	More than 200	18 ⁰ to 29 ⁰ C	Western coastal regions	South west Belgaum, UK, Shivamogga, Chikmangaluru
	Tropical savanna	75-152	Above 18 ⁰ C	Prominent hill of east Sahyadris	
Jangala Desha	Tropical semidesrt steppe/	30-70	Above 20 ⁰ to 32 ⁰ C	Rain shadow belt of Maharashta Tamilnaadu	North east of Belgaum, Vijaypur, Bagalkot, Gadag, Koppal, Ballari
	desrte cilamte	Less than 30	Above 34 ⁰ C	Central Rajasthan and Kutch	Kalburgi, Yadgir, Raichuru
Sadarana Desha	Tropical and subtropical steppe	30-65	12 ⁰ -35 ⁰ C	Punjab region	Centralm Belgaum, Dharawad, Haveri.

Geo ecological zones of Belgaum district and *desha*:

1. Hilly zones: Tropical rain forest and savanna (*Anupa Desha*): Represented by south west part of Khanapur taluka.

Table no 1.2.4 : *Anupa Desha*-Hilly zones⁶³

SI No	Parameter	<i>Desha</i>
1	Region/Land	Hilly region- hilly region (<i>Sushobhita with parvatakunjas</i>),
2	Flowers and Fruits	Many variety flowers were spread on ground were found (<i>Aneka vanaraji puspita vana</i>)
3	Rain Fall	It has heavy rainfall (<i>Bahu udaka/pracurodaka/bahuvaari and Varshayukta</i>), average 2468mm rain fall were found.
4	Wind	Cold breeze always (<i>Shisira pawana bhahula</i>). Air dry and slow air (<i>Manda pawana</i>)
5	Water source and body	Source of irrigation were pounds, well, rivers (<i>Saritaa samudra paryanta</i>), lakes, many small streams (<i>Sarita upagatha bhumibhaga</i>).
6	Humidity	Humidity 80-90%. (<i>snigdha environment</i>)
7	Temperature	Maximum temperature is between Max-29.5 ⁰ c to Min- 14 ⁰ c. Mild/ less heat, scarcity of sunshine. (<i>durlabha atapa</i>).
8	Crops	Paddy is the major crop (<i>Shali-dhanya</i>) and sugarcane (<i>Ikshu</i>), Banana (<i>kadali</i>), pulses, sweet potato also groaned. In small amount Maize, chilly, tomato and capsicum were found.
9	Mud/Soil	The soils is red sandy loam and lateritic soils in major areas (<i>Tamra Bhumi</i>).

Figure no 1.1: Hilly land-*Anupa Desha* ⁶⁷⁻⁶⁸



2. Northern dry zone: Dry arid region/ *Maidan* region: Represented by North and East part of district, mainly Athani, Raibag, Gokak, Saudatti and Ramdurga taluka.

Table no 1.2.5: Jangala Desha-Northern dry zone⁶³

SI No	Parameter	Desha
1	Region/Land	Dry (<i>nirjara sthala</i>) and arid Zones and much open space (<i>Paryakashabhuyeeestha</i>), having many thorny plantation, (<i>shami, khadira, badari</i> , etc), full of gravels, sand and stone (<i>parusha khara shikta, sharkara bahula</i>), Always mirage seen due too hot weather. (<i>Mrigathrisnika/ mrigamarichika</i>)
2	Flowers and Fruits	Seasonal flowers and fruits were found
3	Rain Fall	The annual rainfall ranges from 278-441 mm rainfall. (<i>alpa varasha and udaka</i>)
4	Wind	Dry and coarse fast wind (<i>shtira shuska pavana; darunavata, pravaata</i> ,).
5	Water source and body	Very less water source/ Dry and desaert land (<i>alpa varsha and udaka yukta</i>)
6	Humidity	Relative Humidity: 35-70%.
7	Temperature	The intense sun will found in these region(<i>Prachur-atapa</i>). The mean maximum temperatures ranges from 40-42°C during summer and moderate 30-32°C during other months is characteristic feature of dry zone
8	Crops	The important crops grown here are Rabi jowar, Maize, Bajra, Groundnut, Cotton, Wheat, Sugarcane and Tobacco. (<i>Prayaha godhuma, Mudga, Vrihi, Yava</i>)
9	Mud/Soil	The soils are shallow to deep black clay in major areas. (<i>Dhusara bhumi</i>).

Figure no 1.2: Dry land -*Jangala Desha*⁶⁷⁻⁶⁸



3. Northern transition zone- semimalanad region: Represented mainly by Belgaum, Bailhongal, east Khanapur and Hukkeri taluka.

Table no 1.2.6 : Sadarana Desha-Northern transition zone⁶³

SI No	Parameter	<i>Desha</i>
1	Region/Land	The taluks in the Belgaum district that come under this zone are Belgaum, Chikkodi, Hukkeri and Bailhongal.
2	Flowers and Fruits	Seasonal flowers and fruits were seen. (<i>Vanaspati</i> and <i>vanasptya</i> both found)
3	Rain Fall	The annual rainfall ranges from 619.4-1303.2 mm.
4	Wind	Moderate
5	Water source and body	Moderate
6	Humidity	Moderate
7	Temperature	Moderate
8	Crops	The main crops grown are Rice, Jowar, Groundnut, Pulses, Sugarcane and Tobacco.
9	Mud/Soil	soils are shallow to medium black clay and red sandy loam in equal the proportions.

Figure no 1.3 : *Sadarana Desha*⁶⁷⁻⁶⁸

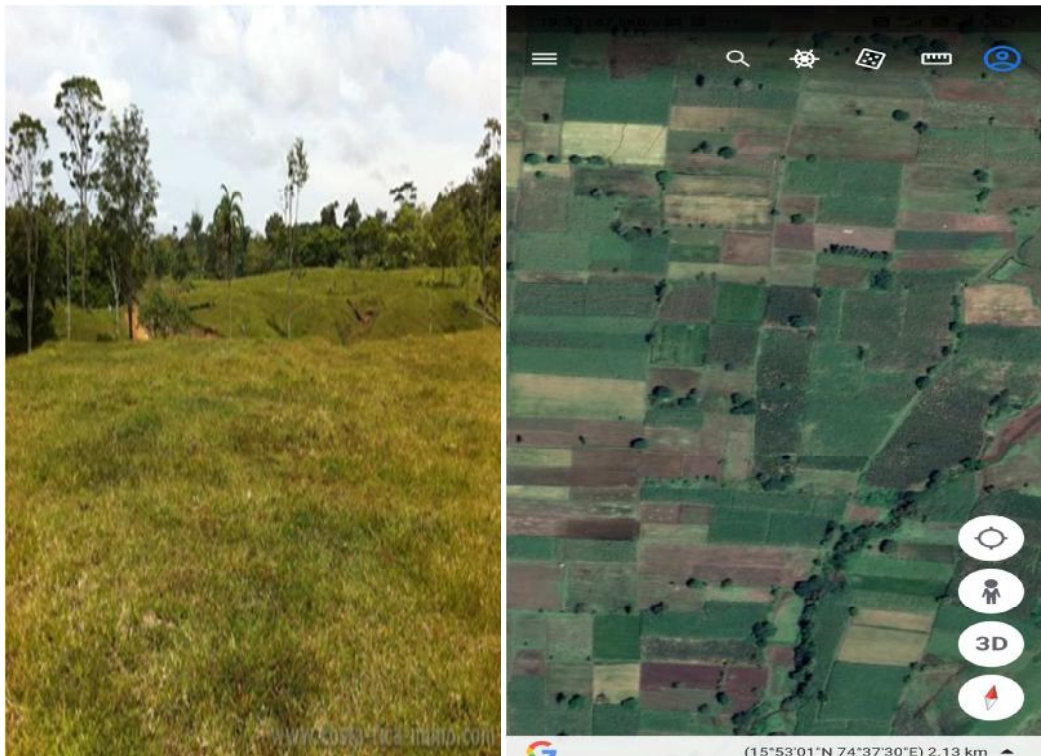


Table No-1.2.7 Classical characters of *Desha*:⁴⁵⁻⁵⁵

PARAMETERS	ANUPA DESHA	JANGALA DESHA	SADHARANA DESHA
Appearance	<i>Sushobhita</i> with many rivers, <i>parvatakunjas</i> (hill), having much flowers and plants, <i>snigdha</i> (soft) and <i>komal</i> (tender) <i>vruksha</i> (trees), always hear sounds of many variety of birds (Yadavji Trikamji, 2004). Having cold-weather because of many rivers, and having <i>nirasabhumi</i> (marshy land) with <i>anushnaguna</i> (Lukewarm weather) & <i>chaya</i> (shadow) <i>yukta</i> (Bhava Misra, 2004)	<i>Paryakashabhuistha</i> , <i>nirbhraakashayukta</i> , (open sky) and land having <i>mrugatrishnika</i> (mirage), dried trees, creepers, shrubs, stony hills and lands. Looks much specious (Yadavji Trikamji, 2004). <i>Anupaviparyaya</i> (opposite to Marshy land), having <i>trunagharadhusaradesh a</i> (full of dry grass and ugly look), <i>nirjara</i> (dry land) <i>sthala</i> (Bhava Misra, 2004)	Mixed climate seen. medium specious, moderate forest seen (Yadavji Trikamji, 2004). Mixed, and less characters of both <i>anupa andjangala</i> (Bhava Misra 2004)..
Bhumi/Land	<i>Tamra Bhumi</i> (Bhava Misra 2004). Wet always, full of rivers, lakes, many verity flowers are spreading on the ground, mountains (Yadavji Trikamji 2004)., (Krishnmurthy 2008)	<i>Dhusara Bhumi</i> (Ash colour mud- dry land), <i>Sharkara Tanu</i> (Sandy mud), <i>Khara</i> (Rough), <i>Parusha</i> (unattractive), <i>Sikta</i> (small sand particales); Arid , sandy zone, irregular land, <i>sharkara</i> (stone) and stony hills. (Yadavji Trikamji 2004); (K.H.Krishnmurthy 2008)	Mixed land has combined characters; plants, birds, animals, <i>Nanavarna</i> (Different colored) <i>bhumi</i> (Bhava Misra 2004)
Jala/Water	<i>Bahudaka/pracurodaka /bahuvaari</i> (Yadavji Trikamji 2004); (Krishnmurthy 2008) ,(Bhava Misra 2004), (good amount of water and water source) <i>Nadee</i> (river), <i>Varshayukta</i> (rainy)	<i>Swalp/alpa-Paniya/udaka</i> (Yadavji Trikamji 2004), (less water and water source) <i>Alpa Varsha</i> (less rain), <i>Prasrvanodak</i> (less water), <i>Alpa-Paniya</i> , <i>Arogyakar</i> (Healthy climate), teasty (Krishnmurthy 2008) sweet water	<i>Sama/ madhyamaudaka</i> (Yadavji Trikamji 2004).,(Krishnmurthy, 2008). (Moderate water and water source)

Nadi/Rivers	<i>Sarita</i> goes upto <i>samudra</i> (river goes upto to sea), many small <i>kunja</i> (rivers) coming from hill are seen Rivers are glittering from <i>vanjula</i> (water plants) and <i>vaanir</i> (Yadavji Trikamji 2004). (water plants), many small rivers which produces the breeze (Bhava Misra, 2004)	Less number of rivers (Yadavji Trikamji, 2004)	-
Vayu/Air	<i>Shishir Pavanabahula</i> (cold breeze always), <i>MriduShita</i> (Soft and cold in nature)	<i>Sthira-Shushkapavana</i> , (dry stable air) <i>Ushna-Darunavata</i> . <i>Pravaata</i> , continuous, forced <i>vaayu</i> (Yadavji Trikamji, 2004)	
Heat/ Ushma	<i>Durlabha-atapa</i> (Yadavji Trikamji 2004). Less intensity of sun heat seen	<i>Prachur-atapa</i> (Yadavji Trikamji 2004). Good amount of sun heat	<i>Medium/sama</i> (Yadavji Trikamji, 2004). Medium amount of sun heat seen
Vanaspati/ Vegetation	<i>Hintala, Tamal, Narikela</i> (cocusnucifera), <i>Kadali</i> (Banana), <i>Vanjula, vanya</i> (nymphaeanouchali), <i>Vanira, nandimuka, pundarika, kaadambamudga</i> (greengram), <i>brinaraj</i> (Eclipta alba), <i>shatapatra</i> (Yadavji Trikamji, 2004). <i>Utpala</i> (kaempferia rotunda.) <i>Shali</i> (hygroryzaaristata), <i>cadambha</i> (anthocephal uscadamba)	<i>Kadar</i> (acacia polyantha), <i>Khadir</i> (acacia catechu), <i>Aasana</i> (pterocarpusmarsupium), <i>Dhava</i> (anogeissuslatifolia.), <i>Aswakarna</i> (terminaliapaniculata), <i>Tinish</i> (ougeniaoojeinensis), <i>Sallaki, Sal</i> (shorearobustha), <i>Somvalka</i> (acacia polyantha), <i>Badari</i> (zizyphusjubaba), <i>Shami</i> (Krishnmurthy, 2008) (prosopisspicigera), <i>karanja</i> , <i>Tinduka</i> (gaub tree), <i>Ashwattha</i> (scared fig/ people tree), <i>Karir</i> (capparis decidua), <i>Kakubha, Bilwa</i> (aeglemarmelos), <i>Pilu</i> (Krishnmurthy,	No thick forest seen, here small <i>vanaspati and vanspatya</i> of both desha seen. (Yadavji Trikamji 2004)

		2008)(savadorapersica), <i>Arka</i> (Krishnmurthy, 2008) (calotropisgigantea). <i>Amalaki</i> (emblicaofficinalis), <i>simsapa</i> (dalbergiasissoo.), <i>karkanda</i> (jackajujube- zizyphusoenoplia)(Krish nmurthy, 2008), (Yadavji Trikamji, 2004)	
Pashu/ Animals	Shash (Rabbit), Varaha (Fork/pig), <i>Mahisha</i> (Buffalo). <i>Khadga</i> (rhinoceros), <i>Ruru,Rohi</i> (Krishnmurthy, 2008), with different variety of <i>jala-mruga</i> (water animals), and <i>pradhanmruga</i> (jungle animals)(Bhava Misra, 2004)	<i>Harina</i> (deer), <i>Ena</i> , <i>prasta</i> , <i>gokarnam</i> , <i>khara</i> , <i>chataka</i> (verity of small sized bird) , <i>vaanar</i> (monkeys), <i>gou</i> (cow), <i>manushya</i> (Krishnmurthy, 2008). <i>Gavaya</i> (cow), <i>maheesha</i> (small sized buffalo), <i>Aja</i> (goat)(Bhava Misra, 2004)	Mixed land has combined characters; plants, birds, animals.(Yadavji Trikamji 2004; and Sharma 1999). <i>Nanajantusukhaprada</i> (Bhava Misra, 2004)
Pakshi/ Birds	<i>Hamsa</i> (Yadavji Trikamji (2004); and Krishnmurthy (2008)) <i>Cakravaka</i> , <i>Balaka</i> , <i>Kokila</i> (Yadavji Trikamji, 2004) <i>Srasa</i> , <i>Korsnda</i> , <i>Balakaa</i> , with different veriety of <i>pradhanpakshi</i> (Bhava Misra, (2004); and Krishnmurthy2008)	<i>Lava</i> , <i>Tittira</i> , <i>Cakora</i> (Yadavji Trikamji, 2004)	Mixed land has combined characters; plants, birds, animals.(Yadavji Trikamji 2004); and Sharma (1999)
Dhanya/ Seeds	<i>Shali</i> (Yadavji Trikamji 2004)	<i>Mudga</i> , <i>Vrihi</i> , <i>Yava</i> (YadavjiTrikamji, 2004) <i>Mudga</i> , <i>vrihee</i> , <i>yava</i> , <i>and phala</i> (Bhava Misra, 2004)	<i>Godhoomolbana</i> , <i>sushobhita</i> with <i>yava</i> <i>and nala</i> . Also produces masha in more quantity (Bhava Misra, 2004)
Manushy& purusha/ People	<i>Mrudu-Sukumar- Upachita</i>	<i>Stira-Kathina-Krusha</i> ; Less fat, compact and beautiful body, long span of life, study and hard working(Krishnmurthy, 2008)	Inhibiting people, firm, delicate endowed with strength, complexion and compactness, other modreate qualities.(Yadavji

			Trikamji, 2004); Harishastri, 2000); and (Sharma 1999)
Dosha	<i>Vata – kapha</i> (Yadavji Trikamji, 2004); Harishastri, 2000), <i>Vatabhuistha</i> (Gyanendra Pandey, 2014); (Krishnmurthy, 2008) <i>Kaph-Vaata Prakopaka, & Pitta Shamaka.</i> (Bhava Misra, 2004)	<i>Vata-Pitta</i> (Yadavji Trikamji, 2004); Harishastri, 2000); and Krishnmurthy, 2008) <i>Pittavardhaka, balakaraka</i> (Bhava Misra, 2004)	Equilibrium Of <i>Doshas</i> Seen (Yadavji Trikamji, 2004); (Gyanendra Pandey, 2014); (Harishastri, 2000), <i>Samadoshata</i> (Gyanendra Pandey, 2014); (Krishnmurthy,2008); It has mixed desha having equal <i>sheetavarsha, ushmata, and vayu,</i> ; healthy place to live (Krishnmurthy, 2008). Maintains equilibrium of <i>prakupitadosha,</i>
Flowers and fruits	Lotus and lilies, big trees full of flowers and fruits.(Krishnmurthy, 2008)	Seasonal flowers and fruits	Seasonal flowers and fruits
Quality of Ahara (food) and padartha (other materials)	<i>Guru</i> (Yadavji Trikamji, 2004). Gunayukta (heavy)	<i>Laghu</i> (YadavjiTrikamji, 2004).gunayukta (light)	Maintain equilibrium of <i>dosha</i> (Yadavji Trikamji, 2004) (medium)
Vyadhi/ Disease	Udara-roga and Amadoshajavyadhies (Bhava Misra, 2004)	<i>Vata and pittaja vyadhi</i>	Seasonal

PRAKRUTI:

Prakriti is the nature of an individual (or a substance).⁵² The physical and psychological features specific to an individual that is produced to the dominant *Dosha* prevailing during the time of conception.² The phenomenon of *Prakriti* is fundamental to understanding human life and its surroundings, especially, the practice of *Ayurveda*. The *Ayurvedic* physician must be able to assess (or examine) the *Deha Prakriti* (physical) and *Manasa Prakriti* (psychological) of the patient before he can prescribe medicines (and diet). Balanced *Deha Prakriti* represents health and the degree of imbalance determines disease.⁶⁹

Definition:

According to *Ayurveda*, everyone is different due to the *Prakriti*. Their size and shape are different, and even the physical, social, mental and spiritual characters are different. It is the *Swabhava* (nature) of the human which covers all the aspects of life. Therefore, the *Prakriti* is the inherent nature of a person both qualitative and quantitative which is determined by unchangeable *doshika* predominance from birth to death¹⁶ (i.e. which cannot be changed during the lifetime).⁵⁴ The *Prakriti* refers to the genetically determined anatomical, physiological and psychological constitution of a person.⁷⁰

Formation:

The predominant *dosha* during the time of *Shukra* (sperm) and *Shonita* (ovum) (ovum) *Sanyoga* (conception) inside the *Gharbhashaya* (uterus) along with 'Jiva' forms the *Prakriti*. Hence the predominance of any one of *Dosha*, two *Doshas* or due to a combination of all the three *Doshas* during pregnancy decides the *Prakriti*.⁷⁰⁻⁷²

Prakriti is also decided based on *Panchamahabhutas* and *Triguna* (psychic qualities *SATWA, RAJAS & TAMAS*).⁷³ Once this *Prakriti* is formed, it is permanent for that individual (for the whole life). *Prakriti* associated with the fetus (*Garbha*) is determined and influenced by the following factors:

1. The constitution of sperm and ovum
2. The time (of conception) and status of health of the uterus
3. The diet and lifestyle of the mother (during pregnancy) and
4. The interaction of *Pancha Mahabhutas*.
5. The factors such as *Jati* (origin as per social structure), *Kula* (race), ***Desha* (place i.e. the geo-climatic / environmental factors)**, *Kala* (time & season), *Vaya* (age), *Pratyatmaniyata* (individual habits and habitat) also play important role in the constitution of an individual.⁷⁴

Table No- 1.2.8 Relation Between *Desha*, *Dosha* and *Prakriti*:¹⁹

SI No	<i>Desha</i>	<i>Dosha Pradhanata</i>	<i>Pradhana Prakriti</i>
1	<i>Jangala Desha</i>	<i>Vata dosha</i>	<i>Vata Pradhana Prakriti</i>
2	<i>Anupa Desha</i>	<i>Kapha dosha</i>	<i>Kapha Pradhana Prakriti</i>
3	<i>Sadarana Desha</i>	<i>Samadhatuja</i>	<i>Samadhatuja Prakriti</i>

TYPES OF PRAKRITI:

Prakriti is the nature of an individual (or a substance). The classifications are as follows.⁷⁵

1. *Deha Prakriti*
2. *Manasa Prakriti*
3. *Bhautika Prakriti*
4. *Jatyadi Prakriti*

1. DEHA PRAKRTI (physical):

Deha Prakrti is also known as *Sharirika Prakriti* or *Doshaja Prakriti* which is based on the predominance of *doshas*. There are seven types of *Deha Prakrti*^{53,37}

Ekadoshaja - Prakriti with single *dosha* predominance were, *Vataja Prakriti*, *Pittaja Prakriti*, *Kaphaja Prakriti*, *Dwandwaja - Prakriti* with predominance of two *doshas* were, *Vata-Pitta*, *Vata-Kapha*, *Pitta-Kapha*, and *Tridoshaja - Prakriti* with an equilibrium of three *doshas* – *Sama dhatuja prakriti*.^{76,77}

2. MANASA PRAKRTI (psychological).

Manasa Prakrti is decided based on the predominance of *Trigunas* (psychic qualities – *SATTVA*, *RAJAS* and *TAMAS*).^{78,37} The concept of *prakriti* deals with whole body and mental setup. IQ of *kaphaja* and *sattvika pradhana prakriti* is more than *vataja* and *tamasika prakriti*.⁷⁹ There are three kinds of *Manasa Prakriti* such as *Satvika prakriti* : *The Brahma kaya, Mahendra, Varun, Kaubera, Gandharva, Yamya* and *Rishi Sattva* are comes under *Satvaja Manas Prakriti*.

Rajasika Prakriti: *Asura kaya, Rakshasa, Paishacha, Preta, Sarpa and Shakuna* are included in *Rajasa Manasa Prakriti*.

Tamasika Prakriti: *Pashava kaya, Matsya kaya and Vanaspatya* Characteristics of *doshaja prakriti* is based on the predominant qualities of *dosha*. *Dosha, Triguna and Panchamabhuta* were formed by mutual contribution.

Classically it is said that the inbuilt qualities of *desha* reflects in the predominant *dosha* of *prakriti* and accordingly the phenotype of an individual is decided. The characters of *doshaja prakriti* according to their qualities are as follows.

CHARACTERISTIC FEATURES OF DIFFERENT TYPES OF *DEHA PRAKRITI*:

The characteristics of *Doshaja Prakriti* is based on the predominant *Gunas* of *dosha*. *Ayurveda* explained that the inbuilt qualities of *desha* reflects in the predominant *dosha* of *Prakriti* and accordingly the phenotype of an individual is decided.^{98,99} The characters of *Doshaja Prakriti* according to Acharya Charaka and their qualities are as follows.

Table No- 1.2.9: Characteristics of *Kapha Prakriti*.⁸⁰

<i>Kapha Guna</i>	<i>Feature of Kapha Prakriti</i>	
<i>Snigdha</i>	<i>Sharir- Snigdha anga</i>	Soft Body Parts
<i>Shlkshna</i>	<i>Twacha- Shlkshna twacha</i>	Soft Skin & glassy skin
<i>Mrudhu</i>	<i>Sharir- Sukumara gaatra</i>	Pleasant look
<i>Madhura</i>	<i>Sexual characteristics- Prabhoota shukra & vyavaya, aptya</i>	Good Stamina and Immunity
<i>Sara</i>	<i>Sharir- Sara smhanana sharir</i>	All tissue well developed
<i>Saandra</i>	<i>Sharir- Upachita paripoorna sarvanga</i>	Well-developed body parts
<i>Manda</i>	<i>Chesta- Manda chestha, ahara, vyavahaara</i>	Slow and Steady in all
<i>Sthimita</i>	<i>Manobala- No shigra arambha kshobha etc</i>	Calm and cool Nature
<i>Guru</i>	<i>Gati- Avasthitha gati</i>	Stable Gait
<i>Sheeta</i>	<i>Appetite- Alpa kshut, thrishna, daaha, santapa,</i>	Mild Appetite
	<i>Sweda- Alpa sweda dosha,</i>	Mild sweating without foul smelling
<i>Vijjalaschya</i>	<i>Sandhi- Suslistha sandhi bandhana,</i>	Strong Joint
<i>Acchatwachya</i>	<i>Swara & appearance- prasanna darshana, prasanna snidha varna swara,</i>	Melodious voice

Table No- 1.2.10: Characteristics of *Pitta Prakriti*:⁸⁰

<i>Pitta Guna</i>	<i>Features of Pitta Prakriti</i>	
<i>Ushnatatwa</i>	<i>Sharir- Sukumara gatra,</i>	Fair Look
	<i>Twacha- Prabhota piplu vyanga, tila pidaka;</i>	Pimples/ Moles/Freckles
	<i>Appetite- Prabhoota kshuda & pipaasa,</i>	Good/excessive appetite
	<i>Kesha- Shigra vali, palita & khalitya.</i>	Premature graying, baldness of hair
	<i>Tolerance- Ushnasahisnu</i>	Hot intolerance
<i>Teekshna tatwa</i>	<i>Manobala- Prakrami,</i>	Brave Nature, hot tempered, brave, jealous, aggressive, commanding nature
	<i>Appetite- Danta shooka.</i>	Desire for food
	<i>Tolerance- klesha sahisnu,</i>	Pain barer
<i>Drava tatwa</i>	<i>Sweda- - Prabhoota srustha sweda</i>	Profuse sweating
	<i>Sandhi- Mrudu sandhi</i>	Loose joint
<i>Visra tatwa</i>	<i>Sweda- Prabhoota pooti Gandha Sharir Gandha- Kaksha, shira, and sharir gandha- pooti gandha</i>	Profuse sweating, foul odor from body, head & axilla

Table No- 1.2.11: Characteristics of *Vata Prakriti*:⁸⁰

<i>Vata Guna</i>	<i>Features of Vata Prakriti</i>	
<i>Ruksha</i>	<i>Sharir- Apachita alpa Sharir</i>	Thin Emaciated Body
	<i>Swara- ruksha asanna jerjer, ksham, sakta</i>	Hoarseness Of Voice
	<i>Nidra – Jagaruka</i>	Alertness
	<i>Twacha – Ruksha</i>	Skin Dry, Rough, Dark Complexion, Cracked
<i>Laghu</i>	<i>Gati- Chapala</i>	Fast Movements
<i>Chalatatva</i>	<i>Sandhi -Chala sandhi</i>	Unsteady Movements Of Joints, Eyes, Eye-Brows, Jaws, Lips, Tongue, Head, Hands & Feet
<i>Bhahutatva</i>	<i>Vak – Vachal</i>	More Talkative
	<i>Sira/ Kandaras – pratana</i>	Prominent Veins And Tendons
<i>Sheetha tatwa</i>	<i>Tolerance - Sheeta asaheeshnu</i>	Cold Intolerance
<i>Parushya tatwa</i>	<i>Kesha- Paarushya kasha</i>	Hairs Rough Dry And Splitting
<i>Vaishdya tatwa</i>	<i>Sandhi - Satata sandhi shabda</i>	Sound From Joints

CHARACTERISTIC FEATURES OF DWANDWAJA PRAKRITI⁸⁰: Due to the combination of two *dosas*, *dwandwaja prakriti* formed and characters are found accordingly.

CHARACTERISTIC FEATURES OF TRIDOSHAJA PRAKRITI⁸⁰: In persons having the equilibrium of all *dhatu*s the characters of all of them are found. Thus, one examines the features of three constitutions together.

IMPORTANCE OF KNOWLEDGE OF *PRAKRITI*:¹⁰¹

1. The health status directly depends upon the balanced state of body components.
2. The lifespan of an individual depends upon his *Prakriti*.
3. The assessment of *Prakriti* is important for the knowledge of the disease process.
4. The Prognosis depends upon the interaction of normal dosha and affecting dosha known as the causative factor of disease.
5. Every substance has its own *Prakriti* and it acts according to the specific characters. It is important to know the basic characters before applying them in healthcare management.
6. The quality and quantity of diet shall always lead to the equilibrium of *dosha* and *dhatu* (body tissues) in the body. The diet of an individual should be prescribed to maintain a balanced state and should be conducive to the preservation of health.
7. The hazardous nature of a disease depends upon *its Prakriti* and the interaction of *dosha* and *dushya* (one which easily gets vitiated such as *dhatu*s, *malas*).
8. In the education system, the assessment of *Prakriti* of disciples and teachers is important for perceiving knowledge.
9. In personalized medicine, *Prakriti* assessment is important for the decision of the correct choice of drug in patients.

PRAKRITI & HEALTH CARE:

Every matter has its own constitution. This may be referred to as the fundamental structure. Harish rotti et.al states that CD4, CD25 and CD56 marker shown significant difference in their expression with their subset *prakriti*⁸⁷ Similarly Ginsburg et.al states in his recent studies on personalized medicine have depends upon understanding of genetic variations with prevention, LSD, disease and drug therapy, which will identify individual risk and guide clinical management for effective approach to a patient care.^{75,88,89} This concept largely emphasizing on the *prakriti* assessment and helps in understanding health and diseases state of an individual and ease in promotive and curative aspects.^{90,91} *Prakriti* can predict susceptibility to get and develop a particular diseases.⁹² Conventional method of *prakriti* assessment involves many methods like physical examination, vishual, tactile, olfactory and auditory assessments. The determination of *prakriti* is depends upon *atmaja, sattvaja, panchabhutika, matru-pitruja, ahara- vhihara*, and dominant *dosha*, along with place and time of birth at the time of conception.⁹³ One should consider *Desha, Kaal* and *Maatra* for curable diseases and choose opposite qualities of drugs of particular *desha*.^{94,95,96}

Therefore, *Prakriti* can be classified into the following categories for a better understanding of healthcare systems.

1. *Prakriti* of a region, habitat and surrounding environment.
2. The constitution of a geographical region is specific.
3. *Prakriti* of a substance like a dietary article, a medicinal herb used in healthcare. For example, the green gram is light to digest. *Ginger* is hot in its potency.

4. *Prakriti* of an individual who is seeking healthcare. Some individuals have dominance of *Vata dosha* in their constitution, while others have *Pitta* or *Kapha dosha* dominance.

Table No- 1.2.12: Characters of *Prakriti* According to Different *Acharyas*:^{80-86.}

SI No/ Character	<i>Vata Prakriti</i>	<i>Pitta Prakriti</i>	<i>Kapha Prakriti</i>	<i>Samadhatuja</i>
1 Body (<i>Sharir</i>)	<i>Stena</i> , <i>Sputita kara-chara</i> , , <i>Durbhaga</i> , <i>Parusha</i> , <i>Dhamanitat</i> (varicose veins), <i>Druta gati</i> , <i>shigra-gaami</i> (P.V. Sharma 1999); <i>Ruksha - Apachita and Alpa Sharir</i> (Bramhanand Tripathi 1994); <i>Krisna varna</i> (black complexion), <i>Ruksha</i> (dry) <i>Balavaan</i> (strengthful), <i>Kshaama</i> (incapable), <i>Atisuksma sharir</i> (very lean) (Gyanendra Pandey 2014); <i>Krusha</i> , <i>Ruksha</i> (Brahmanand Tripathi 2010);	<i>Durgandhayukta sweda</i> , <i>Durbhaga</i> , <i>Valiyukta</i> , <i>Shithilanga</i> , <i>Peeta varnayukta sharir</i> , Always suffers with <i>mukhapak</i> , (P.V. Sharma 1999); <i>Ushna sharer</i> , - Hot extremities; <i>Sukumar and Avadata sharer</i> – soft and fare colored body. They usulay have body rashes like- <i>Viplu</i> , <i>Vynga-Pimples</i> , <i>Tila Pidaka</i> - Heat Rashes/ Boils. <i>Kshipra vali</i> , <i>Madya Bala</i> (Bramhanand Tripathi 1994); <i>Pingala / gour varna</i> (fair and pale complexion), <i>Sukumar</i> (soft organs), <i>Mrudugatra</i> (soft organs) (Gyanendra Pandey 2014); <i>Swedi</i> (more Swetting), (Brahmanand Tripathi 2010);	Colour recembles like <i>druva-indivar</i> , <i>nistrimsha</i> , <i>sharakanda etc.</i> <i>Subhaga</i> , <i>Shuklakshya Klesha sahisnu</i> , <i>Balavanta</i> , <i>Chiragraahi</i> , <i>Suvibhakta ghatra</i> , <i>susnigdha</i> (P.V. Sharma 1999); <i>Snigdha</i> , <i>slakshna</i> , <i>mrudu-sukumara and goura varna yukta sharer</i> , <i>upachita sarvanga.</i> , <i>Guru gatravvat.</i> - Well nourished body. (Bramhanand Tripathi 1994); <i>Susnigdha varna</i> (unctuous complexion), <i>Shyama</i> (blackish complexion), <i>Mamsala</i> (fleshy body (Gyanendra Pandey 2014); <i>Sthulanga</i> , <i>Mahabala</i> , (Brahmanand Tripathi 2010);	Equilibrium State Found

<p>2 Appearance of Body Parts (Sharir Anga Pratyanga)</p>	<p><i>Ati ruksha yukta Nakha Kesha, Smasru</i> (P.V. Sharma 1999); Hairs, beards, mustaches, body hairs, nail, teeth, Face, palm and foot, are rough <i>Sputita anga-</i> cracked body parts, mainly palm and foot. (Bramhanand Tripathi 1994); <i>Sukshmaatidanta</i> (small teeth), <i>Keshalpa</i> (less/short hair) , <i>Nakhavriddhi</i> (long nails) (Gyanendra Pandey 2014); <i>Alpa kasha</i> (Brahmanand Tripathi 2010);</p>	<p><i>Nakha, Nayana Ostha, Taalu Jivha, Paani And Pada Looks Tamra Varna Yukta. Paalitya and Khaalitya Yukta,</i> (P.V. Sharma 1999); <i>Kesha Palitha</i> (white) and <i>Khalitya</i> (Baldness) the person has less and white/brown colored hairs on body, scalp, beards, mustaches. (Bramhanand Tripathi 1994); <i>Madhupinga netra</i> (like honey eyes) , <i>Alomaka</i> (hairless), <i>Danta visuddha varna</i> (clean and white teeth). (Gyanendra Pandey 2014); <i>Akala Palita</i> (Greying of Hair) (Brahmanand Tripathi 2010);</p>	<p><i>Sthira neela kesha</i>(P.V. Sharma 1999); <i>sukumara and goura varna yukta</i> (Bramhanand Tripathi 1994); Sita netra (white eye), <i>Sukeshi</i> (beautiful hairs), <i>Nakha deerga roma</i> (long nails and body hairs) (Gyanendra Pandey 2014); <i>Snigdha Kesha,</i> (Brahmanand Tripathi 2010);</p>	<p>Normal</p>
<p>3 Over all Actions (Sharirika & Manasika Pravrutti)</p>	<p><i>Gaandharva-chitta , Krodhi, Matsari, Adruti , Krutaghna, chanchala- chitta and drusthi; Eat danta and nakha Adrudha maître, Pralapi, Sheetadvesi</i> (P.V. Sharma 1999); <i>Ahara</i> (Food), and <i>Vyavahara</i>(talking)-are fast – <i>Chalayukta and Laghu; Shigra-samarambasha, kshobha, vikarayukta. Shigra trasakar, ragakar-</i> The peoples</p>	<p>No fear, helps ones, support weak persons, <i>Nipun, Vakta, Medhavi; Shigra kopi, Madhya bala, Madhyaayush , Samitishu Durnivarvirya,</i> (Good Fighter) and <i>Nirbhaya, Ushna dveshi</i> (P.V. Sharma 1999); Person has <i>Theekshna Guna – Parakrami; Madya dnyana, Madhyayusha,</i> and</p>	<p><i>Priya darshana , Krutajnya, Dhrutimaan, Satva gunayukta, Dhrudha shaastra, mitra; Madhura priya, Likes jala krida, mrudanga priya, Klesha shaha, parinischita vakya pada,</i> Respect guru (P.V. Sharma 1999); <i>Mandayukta - mandachesta, ahara and vihara. Ashighra</i></p>	<p>Average</p>

	<p>of vata are start any work very fastly and develop fear in heart after that <i>viragakar-sunddelny</i> start loving, hatetreatness , and fearful (Bramhanand Tripathi 1994); <i>Chapala/chanchala, Lolupa</i> (greedy), <i>Heenasatva</i> (lacking <i>satva</i>/confident); <i>Dheergasvana</i> (loud voice), <i>Chankramanakshama</i> (capable of walking), <i>Dheerga karma</i> (fast moving) , <i>Amlirasa bhojana icchuka</i> (desire to eat <i>amla/sour rasa ahara</i>) (Gyanendra Pandey 2014); <i>Vachala, Chala-Mana</i>, (Brahmanand Tripathi 2010)</p>	<p><i>Vitta</i>. (Bramhanand Tripathi 1994); <i>Tikshna pravritti</i> (sharp/intense nature) , <i>Kshana bhangura</i> (easily breakable) <i>Krodhi-traashi</i> (angry), <i>Udvegi</i> (full of tension/ highly emotional), <i>Dveshi</i> (jealous), <i>Stutipriya</i> (likes self-appreciation); <i>Sheeta priya</i> (likes cold materials), <i>Loulya priyatikta rasanubhoji</i> (greedy likes bitter food) (Gyanendra Pandey 2014); <i>Dheeman</i> (Dareness), <i>Roshana</i> (Angryness), (Brahmanand Tripathi 2010);</p>	<p><i>arambha</i>,; <i>Akshobavikara, Balavanta, Vasumanta, Vidyavanta, Ojasvi, Shanta, Ayushmanta.</i> (Bramhanand Tripathi 1994) <i>Trupta</i> (statiating nature) <i>Shaantasvabhavi</i> (peaceful nature) <i>Atisahishnusila</i> (most tolerable); <i>Gambhira shabda</i> (serious talking), <i>Sruta shastra paraayana</i> (faithful to scriptures), <i>Ratilaalasi</i> (desiring sexual coitus), <i>Sangeeta vadya priya</i> (likes musics and songs) (Gyanendra Pandey 2014); <i>Gambhira Bhuddi</i>, (Brahmanand Tripathi 2010)</p>	
4 Sleep (<i>Nidra</i>)	<p><i>Jagaruka</i> , <i>Sambaramena sputa</i> (dreams sky) (P.V. Sharma 1999); <i>Jagaruka</i>, - Very Less Sleep or No Sleep/ always alert(Bramhanand Tripathi 1994); Dreems about <i>Akasha</i>(Sky) (Brahmanand Tripathi 2010);</p>	<p>Dreams about <i>kanaka, palash, karnika puspa</i> and <i>agni, vidyuta</i>(lightening), <i>ulka</i> (volcano), (P.V. Sharma 1999); <i>Alpa nidra</i>(Bramhanand Tripathi 1994); Dreems about <i>Jyoti</i> (Fire). (Brahmanand Tripathi 2010);</p>	<p>Dreams about <i>kamala, hansa, chkravaak</i>, and <i>jalaashaya</i>(P.V. Sharma 1999); <i>Alpa nidra</i> (Bramhanand Tripathi 1994); <i>Nidra tandra priya</i> (sleeps more and lazy (Gyanendra Pandey 2014); Dreems about <i>Jalashaya</i> (Ponds/Lakes). (Brahmanand Tripathi 2010);</p>	Normal

5 Resemblances (Anukta)	<i>Goat, Shruga</i> (P.V. Sharma 1999); <i>Shasha, Aakhu, Usthra, Grudra, Kaka, Khara,</i> (Bramhanand Tripathi 1994);	<i>Bhujango, Oluka, Gandharva Yaksha, Marjara, Vanarai, Vyagra, Aksha Nakul</i> (P.V. Sharma 1999);	<i>Brahma, Indra Varun, Shimha Ashva, Gaja, Go Vrushabha, Taarkshya</i> (Egale), <i>Hamsa,</i> (Bramhanand Tripathi 1994);	Not Specific/ Normal
6 Voice (Swara)	<i>Pratata Ruksha-</i> continuous dry, <i>Kshaama- Ksheena-</i> low pitched, <i>Asanna-</i> <i>Manda,</i> <i>Sakta</i> with obstruction, <i>Jarjara-</i> Hoarseness/ sharp,; <i>Bhahu pralapi-</i> more talkative. (Bramhanand Tripathi 1994);	-	<i>Sthira –Sandra-</i> <i>swarayuktha,</i> <i>Prasanna</i> and <i>snigdha swara</i> (Bramhanand Tripathi 1994);	Normal
7 Comfort	<i>Swedana and vimrdana saukhya</i> (comfortable to sudation and rubbing) (P.V. Sharma 1999);	<i>Tikshna navoushna sevi</i> (pungent and irritant hot food desire) (P.V. Sharma 1999);	<i>Tikta katushna bhoji</i> (desire of more bitter and pungent and hot food), <i>Snigdharasa sevi</i> (favourite for unctuous soup). (P.V. Sharma 1999);	Average

1.3 JUSTIFICATION:

Desha is one of the fundamental principles of *Ayurveda*, which refers to the geo-ecological region or habitat. The predominant DOSHA at the time of conception decides the *Prakriti* (body constitutions). It is also determined and influenced by the specific *Bhumi desha* of an individual and forms one among the major factors to be examined (Parikshabhavas) for diagnosing as well as treating disease.

The specific type of *Bhumi desha* attributes the specific type of geo-climatic conditions. The predominance of *Dosha* of specific *Bhumi desha* influences *Prakriti* and becomes a risk factor in the manifestation of the particular disease. Therefore each specific *Prakriti* tends to follow certain lifestyle activities to maintain the predominant *Dosha* in its natural balance and prevent the disease. Hence, *Bhumi desha* plays a major role in determining the *Prakriti* (health and disease) of an individual.

Table No- 1.3.1 *Desha, Dosha and Pradhana Prakriti:*

<i>DESHA</i>	<i>DOSHA</i>	<i>PRAKRITI</i>
<i>Jangala (Dry land)</i>	<i>Vata</i>	<i>Vata Pradhana</i>
<i>Anupa (Wet land)</i>	<i>Kapha</i>	<i>Kapha Pradhana</i>
<i>Sadarana (Intermediate land)</i>	<i>Sama Dosha</i>	<i>Samadhatuja</i>

Since the geo-ecological parameters explained in the *Ayurvedic* classics for each *Bhumi desha* are very much broad and is not dealt with anywhere and even it is not used in present practice also, there is a need for proper identification and mapping of the regions (land or place) into a different *Bhumi Desha* and for assessment of the dominant of *Prakriti* of different types of *Bhumi Desha*.

Belgaum District had diversified habitats and climates. There is a need of identifying these habitats in terms of *Bhumi desha* - *Jangala Desha*, *Anupa Desha*, and *Sadarana Desha* with present geo-ecological parameters and draw a land map and demark the area of Belgaum district into the predominant *Bhumi desha*.

So, if definite criteria are developed, the concept of *Desha* will be brought into regular usage in clinical practice and applications of *Ayurveda* fundamentals like *prakriti pareksha*.

Hence the present study has been undertaken as ‘Determining Geo-Ecological Parameters for Designing Desha Wise Map of Belgaum District and Assessment of Desha Wise Prakriti Predominance - A Cross Sectional Study’

2. MATERIALS AND METHODS:

Research Design:

Based on current concepts and data from the review of literature about *desha*, this study continues to explore the assessment parameters for *desha* and their relation with *pradhana prakriti* in respect to the Belgaum district.

This was a Cross-sectional study (Survey) aiming to determine the parameters for assessment of different *bhumi desha* of Belgaum district, Karnataka and the prevalence of *pradhana prakriti* in them.

Structured assessment parameters for *desha* and standard questionnaire for *prakriti* assessment was used in the survey to explore the *desha* and *prakriti* relation in concerns with Belgaum District.

Source of Data:

Literary Data: Literature about *bhumi desha* and *deha prakriti* is collected from

- Classical textbooks of Ayurveda and Recent Relevant Literature.
- Articles from periodicals, journals and other published works.
- A related source of the data from the internet.

METHODOLOGY:

Study Design: A Cross-sectional Study.

The study was conducted in three chapters

1. Determination of geo-ecological parameters for assessment of *bhumi desha*
2. Designing *desha* wise Belgaum district map following the parameters developed for *bhumi desha*.
3. Survey to determine *desha* wise *deha prakriti* predominance.

1. Determination of geo-ecological parameters for assessment of *Bhumi Desha*:

All the features of Three *Desha*'s as explained in Ayurveda were attempted to compare with the nearest similarity/resemblance of the present geo-eco-logical pattern [Table no1.2.2 & 3].

A pre-designed and semi-structured research data sheet was prepared that consisted of classically explained geo-ecological parameters of different types of *Bhumi Desha*. Annexure -E (Table.1).

The Geo-ecological parameters distinguished for a specific *Bhumi Desha* arranged for the most part on vegetation type, likewise incorporates longitude, scope, soil type, rock type, water source (well, bore well, lakes and so on.) and level of water accessibility, crops, temperature, wind, mugginess, number and assortment of trees, kinds of leaves, sort of land (plane, uneven, rough and so on.), region of open space, from Mobile Accu-Weather android app with GPS (www.accuweather.com/en/in/india-weather) and with a computing device have been recorded at each spot mulling over 100 square meters area for 100% by visiting personally.

A. Development of assessment parameters:

Based on the classical parameters of *Bhumi Desha*, total of 30 different geographical regions of predominance having a particular type of *Bhumi Desha* i.e. *Jangala Desha*, *Anupa Desha* and *Sadarana Desha* (Table. 2.1) of Belgaum district were visited personally along with Guide and Geologists. (Fig 2.1 & 2.2; Annexure –E)

The ideal *Bhumi Desha* wise data were collected, recorded and analyzed to develop the systematic assessment parameters for demarking the *Desha* majorly by developing the mean percentage of vegetation. (Annexure-E, Table no 2)

Table. 2.1 List of 30 different Geo-graphical regions of Belgaum District visited

Sl.No	Name of the place	<i>Desha</i>	Taluka
1	Ankali	<i>Jangala</i>	Chikkodi
2	Athani	<i>Jangala</i>	Athani
3	Jainapur	<i>Jangala</i>	Chikkodi
4	Mattikoppa	<i>Jangala</i>	Bailhongal
5	Kagwad	<i>Jangala</i>	Athani
6	Murgod	<i>Jangala</i>	Savadatti
7	Mangasooli	<i>Jangala</i>	Athani
8	Mejalatti	<i>Jangala</i>	Chikkodi
9	Ankalagi	<i>Jangala</i>	Gokak
10	Ghodageri	<i>Jangala</i>	Gokak
11	Ammanagi	<i>Jangala</i>	Hukkeri
12	Kempwad	<i>Jangala</i>	Athani
13	Navalihaal	<i>Jangala</i>	Athani
14	Pacchapur	<i>Jangala</i>	Gokak
15	Siraguppi	<i>Jangala</i>	Athani
16	Ramadurga	<i>Jangala</i>	Ramadurga
17	Toragall	<i>Jangala</i>	Ramadurga
18	Tumeraguddi	<i>Jangala</i>	Belagavi
19	Katakol	<i>Jangala</i>	Ramadurga
20	Manturga	<i>Anupa</i>	Khanapur
21	Jamboti	<i>Anupa</i>	Khanapur
22	Kusumaali	<i>Anupa</i>	Khanapur
23	Hemagada	<i>Anupa</i>	Khanapur
24	Shiroli	<i>Anupa</i>	Khanapur
25	Tivoli	<i>Anupa</i>	Khanapur
26	Shahu Nagar	<i>Sadarana</i>	Belagavi

27	Nesargi	<i>Sadarana</i>	Bailhongal
28	Khanagonv	<i>Sadarana</i>	Belagavi
29	Narasingpura	<i>Sadarana</i>	Belagavi
30	U. Khanapur	<i>Sadarana</i>	Hukkeri

Figure no 2.1: Different places of Belgaum District visited personally along with Guide and Geologist:



Figure no 2.2: Different places of Belgaum District visited personally along with Guide and Geologist:



Later the screening and mapping of such geo-geographic regions of Belgaum district into different types of *Bhumi Desha* were prepared. And Belgaum district stratified into three zones.

2. Designing *desha* wise Belgaum district map in accordance with the parameters developed for *bhumi desha*.

Stratification of Belgaum Zilla for choosing the three zones :

Collection of the Data:

Data for *Bhumi Desha* were collected through the fieldwork (survey of land) from the different geographical regions of the Belgaum district.

Screening of Belgaum District:

The geo-ecological parameters evolved from the surveyed visit, the final assessment parameters for *Bhumi Desha* were prepared and developed (Research Proforma.1). Based on these parameters, the whole Belgaum District was screened on the Google Earth app (Version 9.145.0.3 (open source licenses)) into different *Bhumi Desha*. Around 108 places were identified as *Jangala Desha* (Arid Land), 41 were as *Anupa Desha* (Marshy Land) and 107 were as *Sadarana Desha* (Mixed type of Land). In this way, a total of 256 different types of *Bhumi Desha* were identified and sampling locations maps were developed.

Sampling locations maps of Belgaum District:

The sampling locations maps of the Belgaum District were done by using different colours for the different types of *Bhumi Desha*. The green coloured triangles for *Jangala Desha*, the blue colour stars for *Anupa Desha* and the brown colour dots for *Sadarana Desha* were used. The *Desha* wise map was prepared. (Fig 4.6 & 4.8)

Preparation of *Desha* wise Mapping:

The *Desha* wise maps were designed by taking high-resolution Google maps. The QGIS version 3.18.1 was used to prepare different *Bhumi Desha* of the Belgaum district. The different *Bhumi Desha* maps were demarked by using different colours such as the yellow colour for *Jangala Desha*, the light blue colour for *Anupa Desha* and the brown colour for *Sadarana Desha*. (Fig 4.1 to 4.8)

3. Survey to determine *desha* wise *deha prakriti* predominance.

A relevant **Standard Questionnaire proforma** (Annexure-A, Table no 2) was used for the assessment of *Prakriti* of the subjects.

All individuals were examined according to the criteria mentioned in the classics. As there were few variations in assessment parameters used by different acharyas; they were assessed with the help of relevant standard proforma (Annexure-A). The required assessment questions were added and reframed after an extensive literature search and in consultation with the guide.

Components of the questionnaire: The questionnaire consisted of two components:

- A. Anthropometric measurements:** It consists of height, weight, BMI, mid-arm ratio, waste-hip ratio, abdominal circumference and skinfold thickness of the different areas of the body viz, supra iliac region, triceps and subscapular region.
- B. Body measurements:** It consists of nature of skin texture, reactivity on pinch and exposure to sunlight, hair texture, the colour of hair, hair distribution, baldness, premature greying of hair, sweat type and odour, sound from joint, appetite, sleep pattern, tolerance, appearance, common morbidity along with present health condition. Also assessed the prominent veins and tendons, number of moles, cracked heel and palm, frequency of fever, cold and number of children.

Training for Anthropometric measurements:

Training SOP Anthropometric measurement: Underwent training for Anthropometric measurement on 12th - 15th December 2018. (Annexure-E).

Instruments for the survey: Following instruments were purchased for the survey and all are calibrated by the head of the department physiotherapy along with training given for SOP of Anthropometric measurement. (Photo no-2.3)

- a. Indo-surgical Height measuring scale
- b. Vernier Caliper
- c. Manual Weighing Scale
- d. Measuring tape
- e. Computing Device

Figure no-2.3 : Instruments for the survey:



1st phase: Selection of random villages of Belgaum District:

Sample Size:

The sample size was calculated from the formula $n = 4pq / d^2$. Where, n = Sample size; p = Percentage of Subjects, q = (100-p), d = Relative error in the estimation of p. Based on the outcome of the *Prakriti* Predominance of previous data with relative risk not more than 10%; i.e, not exceeding 10% (d-3%) error of a the proportion, the sample size is 4727.

Sampling Method-Desha: Random sampling method (Lottery method)

The geographical regions belonging to *Jangala*, *Anupa* and *Sadarana Desha* were written on the piece of paper and coded with the number. All papers were kept *Desha* wise in different trays having different colours. The experts were picked up the five chits randomly from each tray one by one, after mixing well.

In this way, 15 different geo-geographic regions of the Belgaum district were selected by Lottery Method (Table. 2.2) by choosing 5 regions from each *Bhumi Desha*.

Table. 2.2 Selection of different *Desha* by Random (lottery) sampling methods

SI No	Name of the Desha	Taluka	Total Population of each Desha	Total Population to be surveyed
JANGAL DESHA				
1	Inchal	Saudatti	6563	437
2	Devalapur	Bailhongal	4901	326
3	Murgod	Saudatti	11551	769
4	Udekeri	Saudatti	3417	227
5	Kokatnur	Athani	7689	512
ANUPA DESHA				
6	Nerse	Khanapur	2099	139
7	Jamboti	Khanapur	2482	165
8	Dongaragav	Khanapur	478	31
9	Londa	Khanapur	8329	555
10	Godholi	Khanapur	2144	142
SADARANA DESHA				
11	Hudali	Belgaum	6694	446
12	Pantabalekundri	Belgaum	5731	381
13	Alarwad	Belgaum	2500	166
14	Aste	Belgaum	3010	200
15	Khanagav	Belgaum	3867	257
TOTAL			71455	4753
SAMPLE SIZE : 4727				
<p>$4727/15 = 315.13 = 315/$ Desha</p> <p>Each population of Desha X per Village Sample size /Total Sample size = Total Population per Desha to be surveyed.</p> <p>Example: Desha - Inchal</p> <p>= $6563 \times 315/4727 = 437$ etc. (Final Sample size was 4753)</p>				

2nd Phase; Sampling Methods-*Prakriti*:

Ethical Committee Clearance:

Following approval of the research proposal from the University Ethics Committee and the Institutional Ethical Committee approved the present study. The reference number is KLEU/EC/17-18/D-99 Dated 16th May 2017. (Annexure-C)

Sampling Method for assessment of *Prakriti*:

The subjects from different geo-geographic regions of the Belgaum district were selected for this study. A systematic sampling method was used. Every second house from each village was surveyed, those were fit to inclusion criteria.

3rd Phase Survey:

Consent of the Samples:

The written consent was prepared in all local languages viz, Kannada, Marathi and English and presented in front of the ethical committee. After approval from the ethical committee, prior consent was taken from each subject respectively after providing the information sheet to them.

Interview method:

The *Prakriti* assessment was carried out through Face-to-face interviews with respondents belonging to 15 different geo-geographic regions of the Belgaum district. All the subjects who fall in inclusive criteria [as mentioned below] of each family were assessed for their *Prakriti* in their respective house (systematic sampling method).

The subjects were thanked for their active participation in the study.

Assessment of *Prakriti*:

All individuals were examined according to the criteria mentioned in the classics and were assessed with the help of relevant standard proforma. (Annexure-A; Table No. 2). The individual has 60% or more than 60% factors of one *dosha* were considered as the same *Dosha Pradhan Prakriti*. Then samples were divided according to *dosha pradhan Prakriti* as *Vata Pradhan Prakriti*, *Pitta Pradhan Prakriti* and *Kapha Pradhan Prakriti*

Inclusion Criteria:

- Age group between 18 to 60 yrs.
- Sex- both male and female.
- Apparently healthy volunteers.
- Permanent residence of the study area

Exclusion Criteria:

- Pregnant and lactating women.
- Subject having any acute or chronic illness.
- Physically handicapped subjects (Blind, Dum and duff etc)

Data collection:

The data on *Bhumi Desha* and *Prakriti* were collected and kept confidential. They were systematically coded and analyzed for statistical analysis.

Statistical Analysis:

R - Statistical software version 3.5 was used in the analysis of the data. The data was analyzed by 'Pearson the chi-square test of independence, One-way ANOVA test and Bonferroni corrected t-tests were used in this study.

3. OBSERVATIONS

During field visit perceptions were made on the accompanying elements to preclude likenesses between *Desha* by looking at *Ayurveda* writing and regular geo-biological outline

Vegetation:

Plants/vegetation's filling in the various regions were noted. The vegetation dispersion all through the overviewed regions was unique and inconsistent spread. Here there is a lot of distinction found from the south - west piece of Khanapur Taluka (wet and boggy land-Jamboti, Kusumali, Shirol, Bhimagad, Manturga, Tivoli,) where a thick measure of vegetation was found (> 250 plants/100 sq. met) and the planation were of enormous and tall (86%), little verdant trees (14%), having large estimated leaves, delicious plants (97%). non-prickly trees (98%), prickly plants (2%), non-prickly bushes (almost 100%) and prickly bushes (1%) were found per 100sq. mets (Table no 3). These regions lie in the thick woodland of Western Ghats of Belgaum area of Karnataka state. It is enhanced with slopes and groves, has large amounts of trees went to by a gentle wind. The area is brimming with columns of blooming plants that were bounteously found.

Where as in north and east pieces of Belgaum area, viz, Athani, Raibag, Ramdurga, Savadatti, Gokak and portions of Bailhongal talukas (Dry and dry land-Ramdurga, Torgal, chikkodi, Jainapur, Kagwad, Murgod, Ghodageri, Tumerguddi, Katkol) were having less vegetation (< 150/100sq mts.) with the prickly plant (66%) like babul, cactus, and so forth having little measured prickly bushes (71%), non-delicious leaves (86%), little and cutting edged leaf trees (83%) and had smooth latex

(Table no 3). There was a lot of open space and *maidan* regions around Athani, Gokak, Ramdurga and Savadatti taluka. These characters helped in recognizing and demarking various spaces of the Belgaum area. As vegetation mirrors the wellspring of water. There were prickly, little estimated, cutting-edged and had a non-succulent leaf.

Moderate vegetation (up to 200/100sq mts.) were found in Belgaum, Hukkeri, portions of Khanpur, and Bailhongal talukas. There was no thick timberland seen and non-prickly (89%), prickly plants (11%), huge leaf plants (74 %), little verdant plants (26%), succulent plants(80%), non-delicious plants(20%), prickly shrubs(38%) and non-prickly bushes (62%) were discovered (Table no 3). (Middle of the road land-Hukkeri, Nesargi, Khangaov, Narasingpur, U. Khanapur, and so forth)

The ranch has a place with *Anupa desha* and *Jangala desha*, which were approximately comparative as explained in the classics.

Water source and rain fall ratio:

Water sources, water body and bore wells were considered for *Desha* appraisal. Wet/mucky land were having a greatest measure of water sources and bodies. Like lakes, waterways, pound, well and bore well were brimming with water. Discovered in excess of 5 water bodies (per 100 sq mtrs.) with a lot of water slacking. A waterway *Malaprabha* get through these spaces brimming with water. Subsequently, the climate is delicate and wet and individuals living were discovered smooth and delicate skin, great body assembled.

The spots of dry and dry land had less water sources and bodies. Under 2 water bodies with the extremely least measure of water found. Individuals were relying on bore well water and more bore well were found in these areas, yet water is unnerving in them. Just places adjacent to the banks of stream having wellspring of water in these spots and these were just had water during blustery seasons and remaining time they are vacant. As two significant waterways going through these Jangala desha to be specific *Ghataprabha* and *Krishna* streams. Uually *Anupa Desha* had *Prachura Udka* and *Varshayukta*, *Jangala Desha* had *Alpa paniya*, and *alpa Varshya yukta* and *Sadarana Desha* had *Sama/madhyama udaka* and *varsha yuktha*. Essentially, Indian meteorological office and locale geology report of Belgaum region uncovers that the downpour falls proportion limit of 1859mm of downpour found in wet land (Khanapur taluka) and 503 mm found in dry land (Saudatti taluka). The normal precipitation proportion is 761mm found through the Belgaum locale (Belgaum region Geological overview report of October 2017).

The intensity of the Sun, Humidity and Wind:

In the locales of Nerse, Jamboti, Dongaragav, Londa and Godholi of Khanapur taluka, the force of the sun is less a result of the tall and uplifted backwoods and had a lot of dampness, because of this individual used to sweats and had delicate skin. As per the Belgaum region Geological review report of 2017, the power of the Sun is on normal 290C and least 140C. The general stickiness was 80-90% were discovered which causes lavish dampness and sweat in individuals which understudy causes the non-abrasiveness of the skin.

The serious sun and hallucination were found more in Kokatnur of Athani taluka, Udikeri of Saudatti taluka and practically all dry land (Inchal, Devalapur, Murgod) and less dampness were found. As per the Belgaum area Geological study report of 2017, the force of the Sun on normal 320C and most extreme 400C which causes the decrease in the vegetation. The general moistness was 35-70% along these lines exceptional hotness and mirage were common.

The force of the sun was discovered moderate in the locales of Hukkeri taluka and Belgaum taluka. As indicated by the Belgaum area Geological study report of 2017, the force of the Sun on normal 360C and least 140C was found in middle of the road land. The mugginess was 60-80% which is moderate relatively other two *Desha* and causes moderate sweat.

The kind of wind is cold and windy (13km/hrs) found in wet land regions (*Anupa desha*) and hot, coarse and dry breeze (23km/hrs) found in dry and dry land (*Jangala desha*). Due to dry climate individuals living in *Jangal desha* discovered more dry skin, flimsy and heavy body fabricated, broke foot and palm. A moderate breeze (11-16 km/hrs) is found in transitional land.

Unmistakably the moistness is 32% found in high and bumpy land places. (Jamboti and Bhimgad of Khanapur Taluka of Belgaum locale), Where as it is relatively less in dry and dry land (Athani, Ramdurga and Savadatii taluka) which is 27%.

Mud:

Mud type is likewise the best boundary taken for the current review. It is tracked down that the debris and blackish colure land alongside sand and rock were found close to regions dry and bone-dry place where there is Belgaum area. There were stony slopes close to Torgall and Katkol space of Ramadurga taluka; Gokak falls of Gokak taluka and Jainapur of Chikkodi taluka. Red and dim earthy colored shading delicate mud and little minuscule stones were found in timberland districts of wetland region. What's more, blended shading (Black and brown) mud (Balck and red shading mud in practically all pieces of Belgaum taluka and blackish shading mud in Hukkeri, Bailhongal and portions of Khanapur taluka) found in transitional land.

Animals and Birds:

The rundown of birds and creatures found in the various regions was likewise gathered. which are given critical outcomes in recognizing the eccentricity of regions. Not many birds and creatures which are depicted in works of art are not seen, and a large portion of the nearby people groups were uninformed of these names of birds and creatures. We discovered more Duck, Dear, Snakes (ruler cobra), Buffalo, Pigs, Tigers, Bear and Elephant (as neighbourhood individuals found in their fields) in areas of wet land; though Cow, Goat, Dogs, Donkey, Peacock, Small Sized Birds Like Sparrow, and so forth were found more in a dry and dry land.

Crops:

Harvests significantly paddy/rice, banana manors and sugar stick were found in wet land; maize, jawar and saje were found in dry land and while, wheat, grain,

sugar stick, numerous vegetables cabbage, cauliflower, beans, meti, carrot, radish and so forth were found in moderate land.

Latitude and Longitude:

The boundaries of scope and longitude partition Belgaum locale into three geological regions as mucky land, dry land and moderate land are as per the following, Marshy land lies between Longitude-< 74.4705785 South and scope <15.6947622 West; Dry land lies between Longitude-> 74.5228815 North and scope >15.8049607 East and Intermediate land lies between Longitude-74.4966602 to 74.7703032 North and scope 15.8920783 to 16.2950963 East. These particular longitude and scope were comparatively coordinating with three zones of Belgaum region.

In view of various boundaries found during the review of various geological spaces of Belgaum area, fostered a mean appraisal boundary (Table no 3). and afterward generally speaking last evaluation boundaries for *bhumi desha* (Table no 4). These appraisal boundaries created were reference principles for demarking *bhumi desha*, all around the Belgaum area and globe.

4. RESULTS:

DATA RELATED TO *BHUMI DESHA*:

Vegetation mean percentage of *Bhumi Desha*: The final vegetation which was taken during a personal visit to different desha were sum up and mean percentage were developed. Which will further become the base for the development of final assessment parameters for *Bhumi Desha*.

Table. 4.1 Mean Percentage of Surveyed Vegetation:

<i>DESHA</i>	Thorny tree	Non-thorny tree	Big leafy tree	Small leafy tree	Juicy plants	Non-juicy plants	Thorny shrubs	Non-thorny shrubs
<i>Anupa</i>	2%	98%	86%	14%	97%	3%	1%	99%
<i>Jangala</i>	66%	34%	17%	83%	14%	86%	71%	29%
<i>Sadarana</i>	11%	89%	74%	26%	80%	20%	38%	62%

Assessment Parameters of *Bhumi Desha*: The final assessment parameters for *Bhumi Desha* data sheet were developed to assess the different parts of Belgaum district. Which contains the assessment of vegetation as the main parameter, along with mud type, water source and agriculture crop.

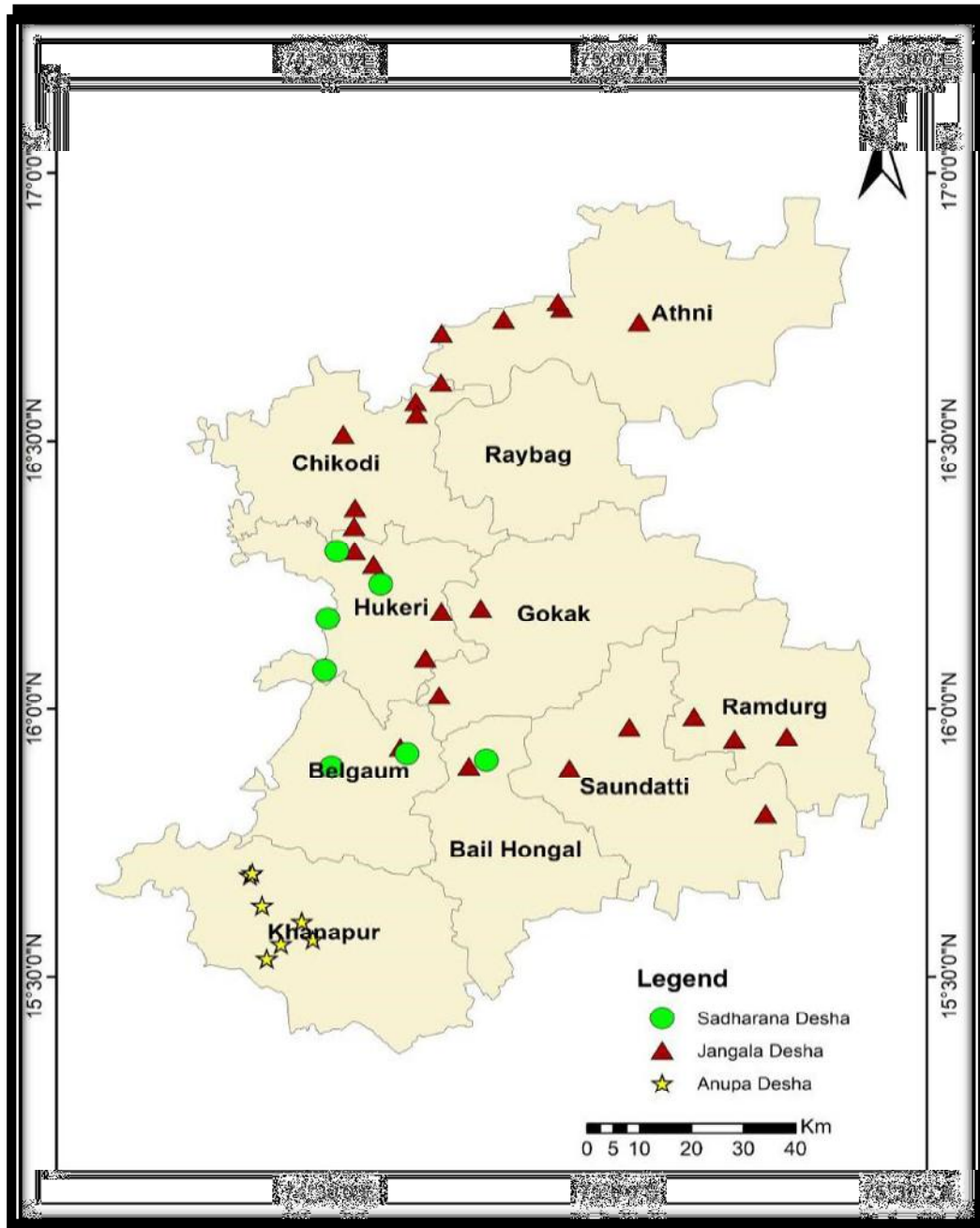
Table No: 4.2 Assessment parameters of *Bhumi Desha* in Belgaum District

SN	ASSESSMENT PARAMETERS	JANGALA	ANUPA	SADARANA
Characters Per 100 sq. meters				
A.	VEGETATIONS			
	1. Thorny plants	>50%	< 10%	10 to 50%
	2. Big trees	<20%	>80%	20 to 80%
	3. Shrubs	>30%	<10%	10 - 40%
B.	OTHERS			
	1. Longitude	> 74.5228815	< 74.4705785	74.4966602 to 74.7703032
	2. Latitude	>15.8049607	<15.6947622	15.8920783 to 16.2950963
	3. No of Trees Per 100 Sq. Meters	Scary <150 (thorny trees)	Dense forest >250 (big trees)	Up to 200 (mixed, medium-sized)
	4. Water source (Bore-Wells, Wells, And Rivers)	<2 water body	>5 Water Body with a good amount of water	2-5 moderate amounts of water
	5.Colour of Mud	Black & Ash	Brown & Red	Black, Brown & Mixed Colour
	6.Agriculture land / crops	Jawar/sajje-Bajara/maize/	Paddy/rice	sugar cane /tobacco / ground nut/

1. DEMARKING OF *BHUMI DESHA* MAP IN BELGAUM DISTRICT:

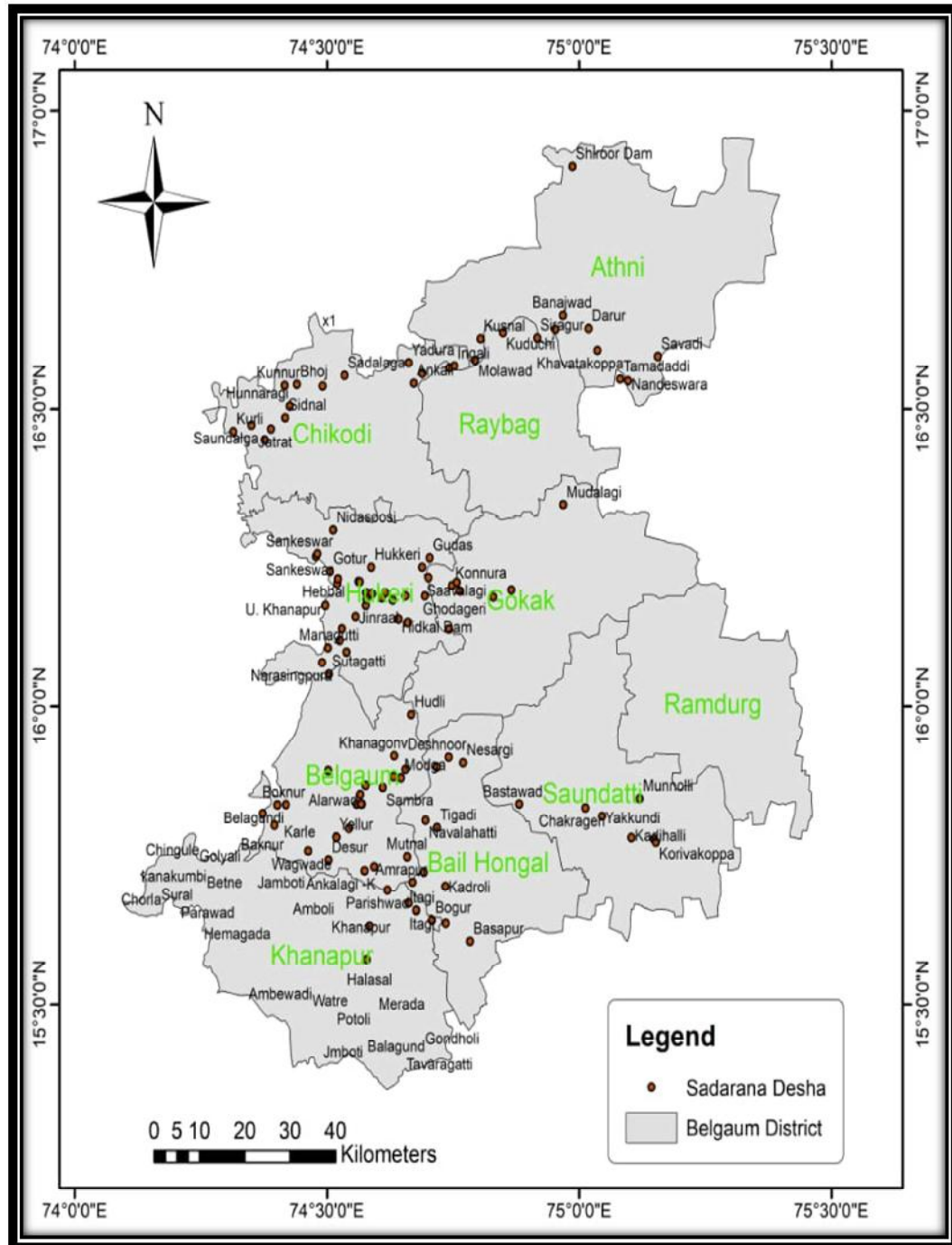
LOCATION OF MAP: The location map is of 30 different places visited personally, to develop geoeological assessment parameter for *Bhumi desha* of Belgaum district.

Map No. 4.1 Location Map, 30 different places of Belgaum district visited



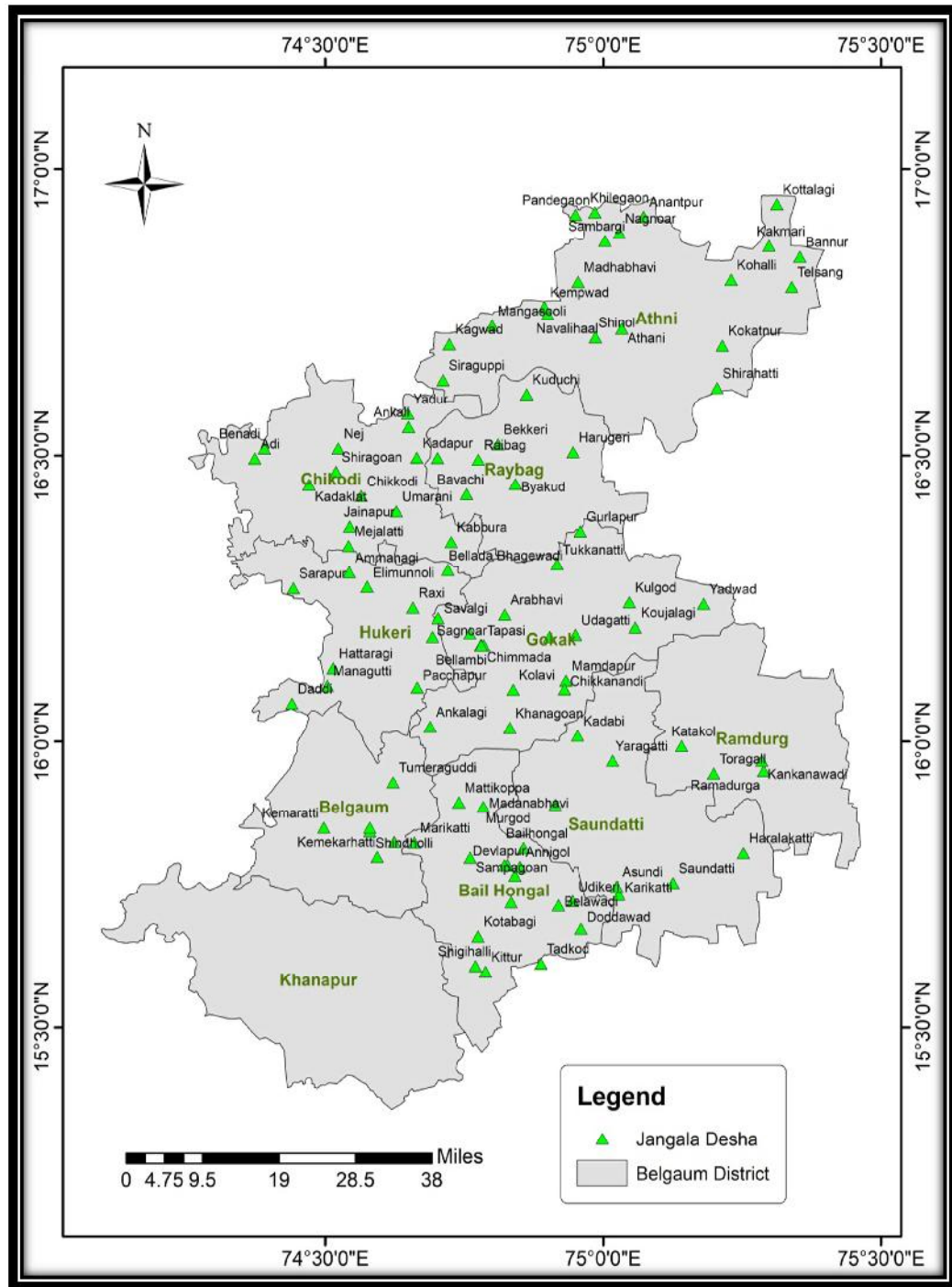
LOCATION OF MAP – SADARANA DESHA: Based on assessment parameters developed we screened different locations of *Sadarana Desha* belonging to Belgaum district.

Map No. 4.2 Location Map of Sadarana Desha:



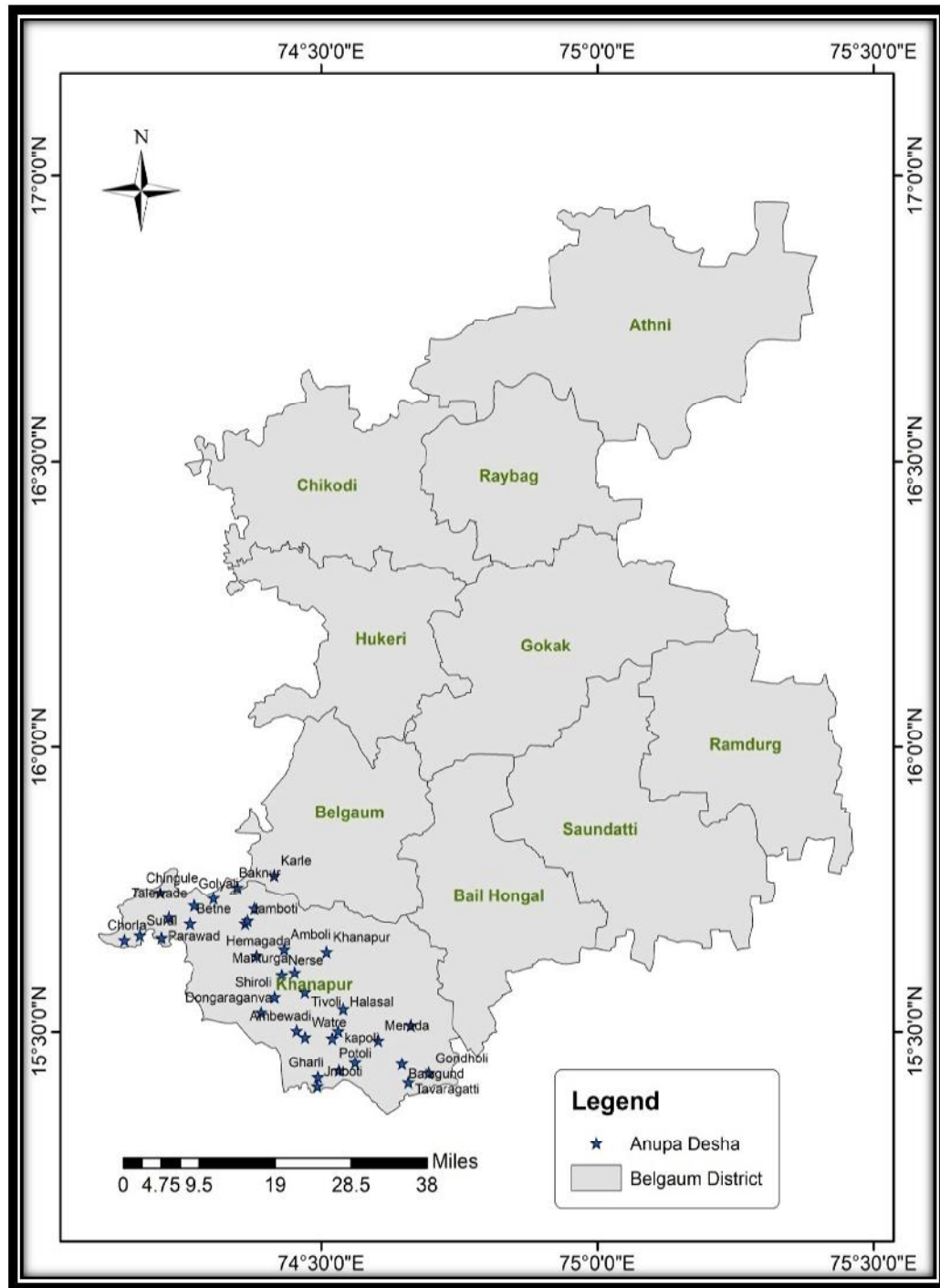
LOCATION OF MAP – JANGALA DESHA: Based on assessment parameters developed we screened different locations of *Jangala Desha* desha belonging to Belgaum district.

Map No. 4.3. Location Map of *Jangala Desha*:



LOCATION OF MAP – ANUPA DESHA: Based on assessment parameters developed we screened different locations of *Anupa Desha* desha belonging to Belgaum district.

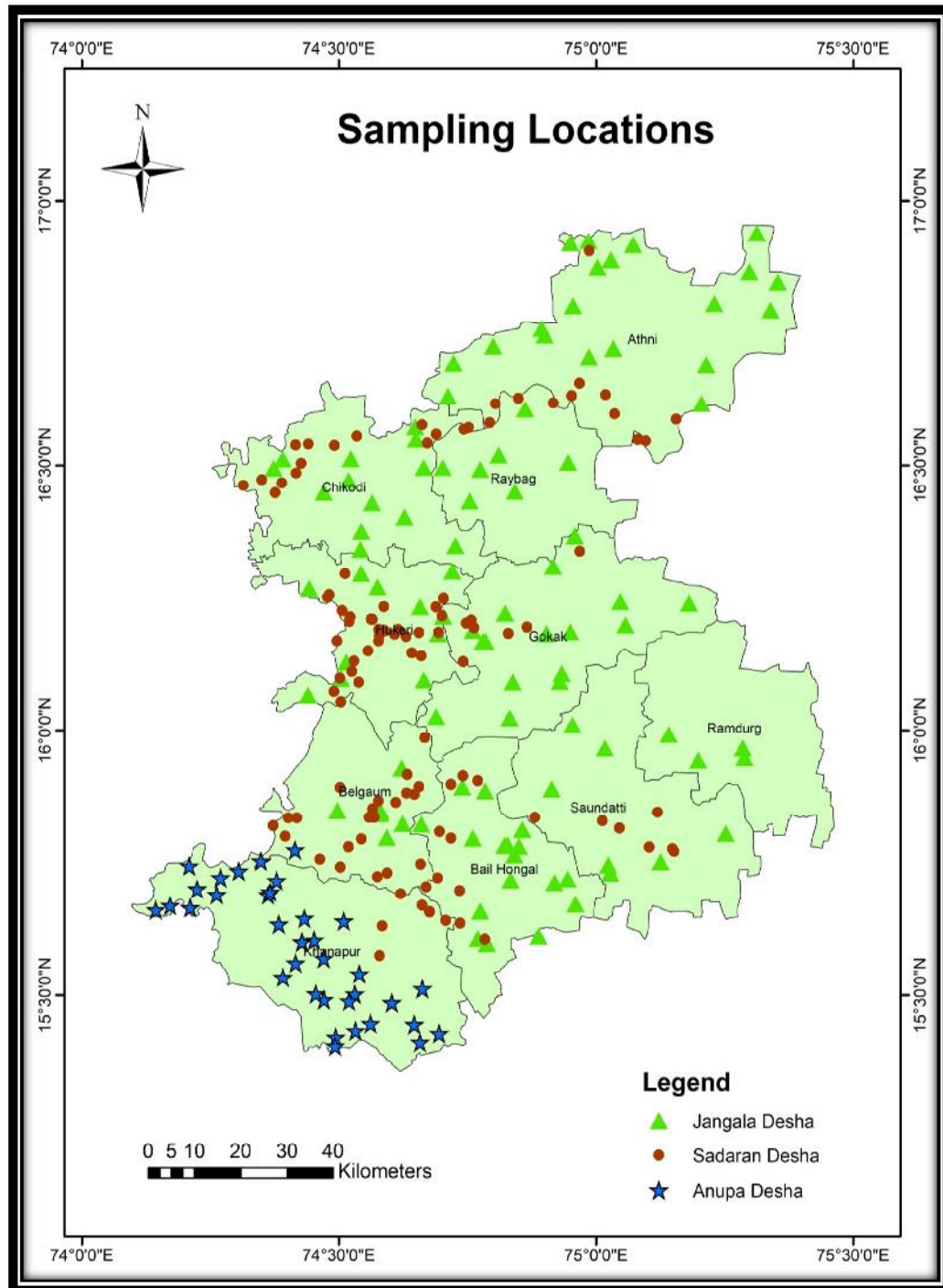
Map No. 4.4. Location Map of *Anupa Desha*:



LOCATION OF MAP – TALUKA WISE:

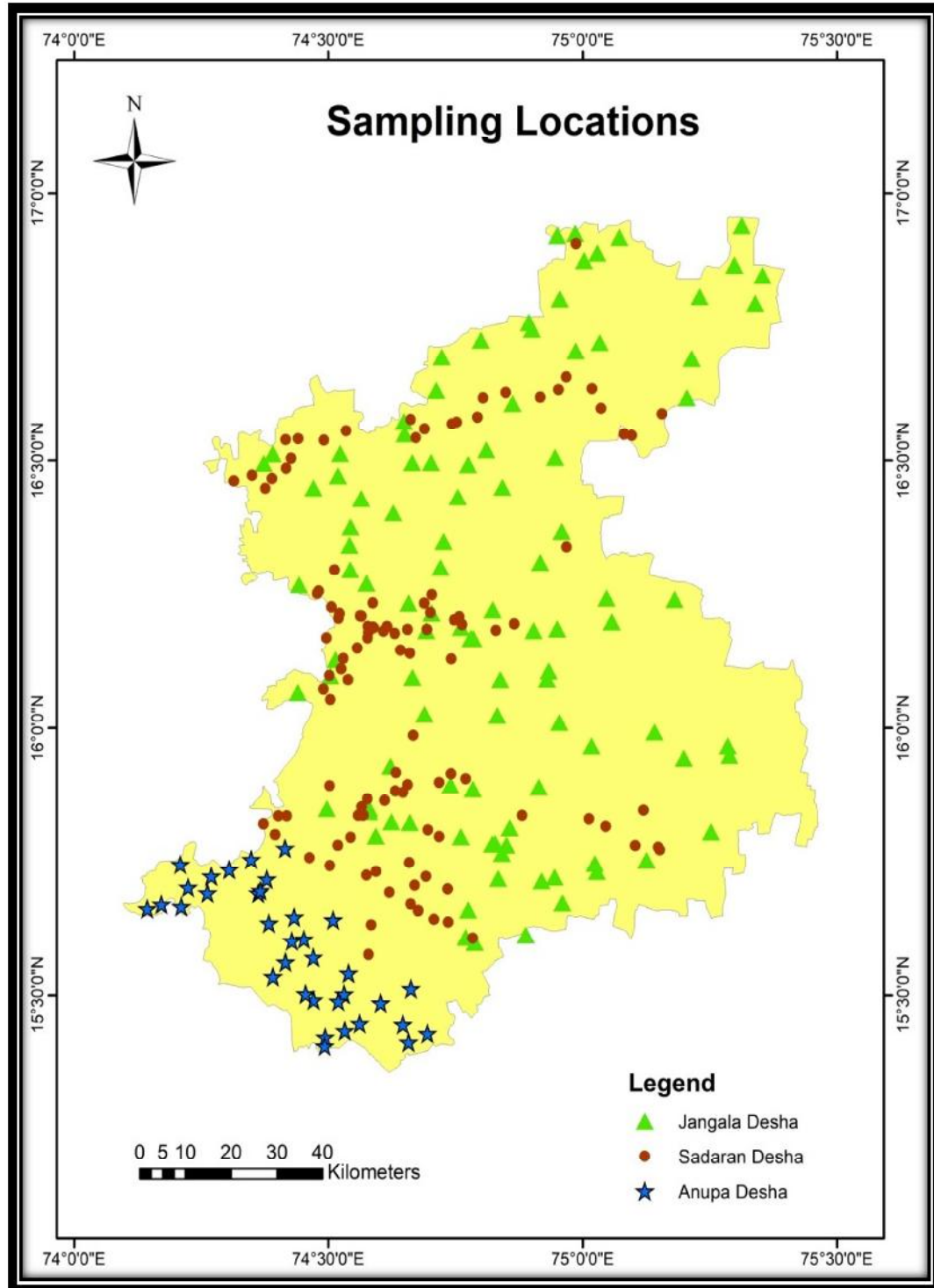
Taluka wise Locations of maps of different *desha* belonging to Belgaum district were developed.

Map No. 4.5 Taluka wise Location Map of Belgaum District



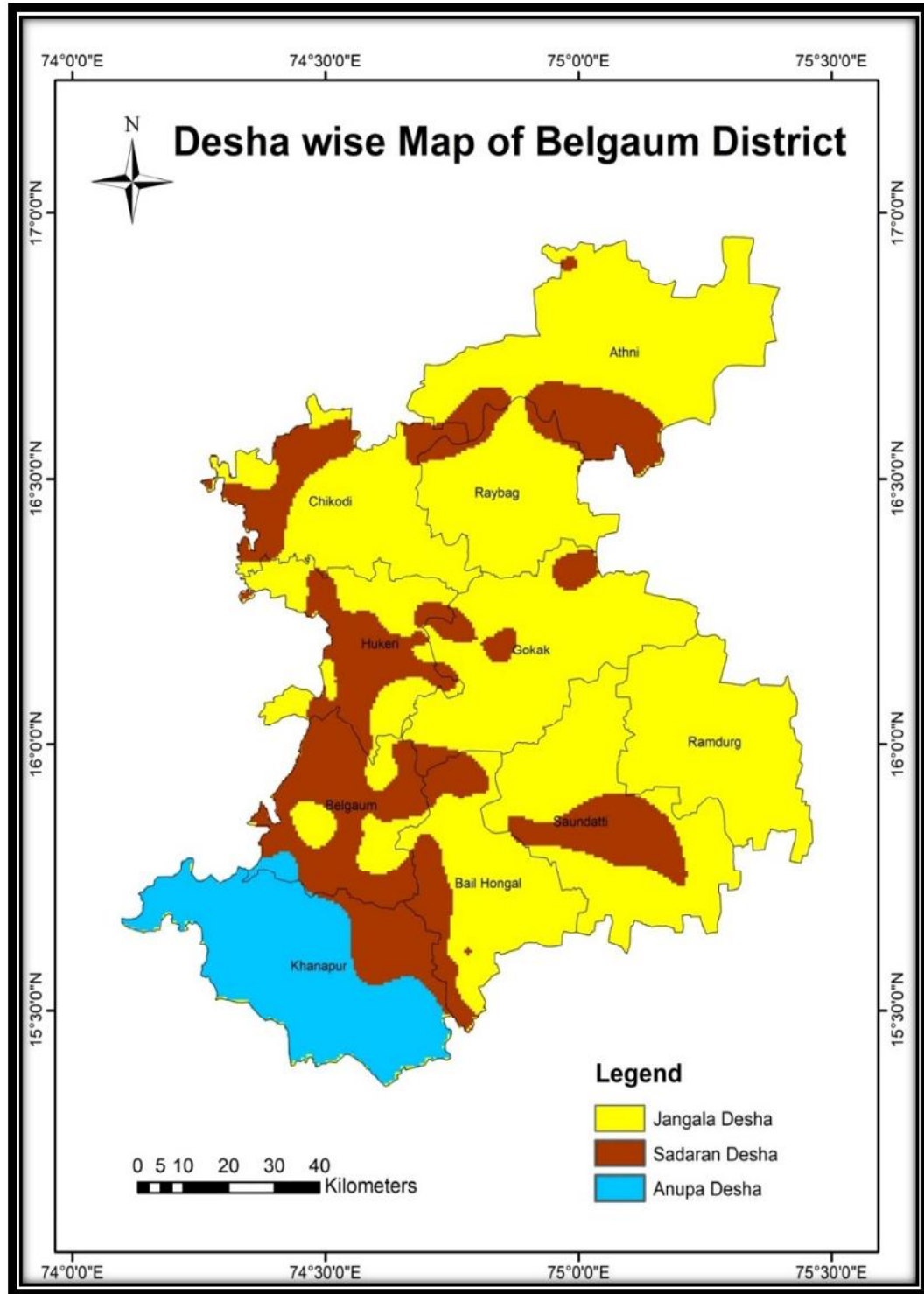
LOCATION OF MAP – BELGAUM DISTRICT: Whole Locations of maps of different *desha* belonging to Belgaum district were developed.

Map No. 4.6 Location Map of Belgaum District



BHUMI DESHA MAP – TALUKA WISE: Taluka wise *Bhumi desha* wise maps of different *desha* belonging to Belgaum district were developed.

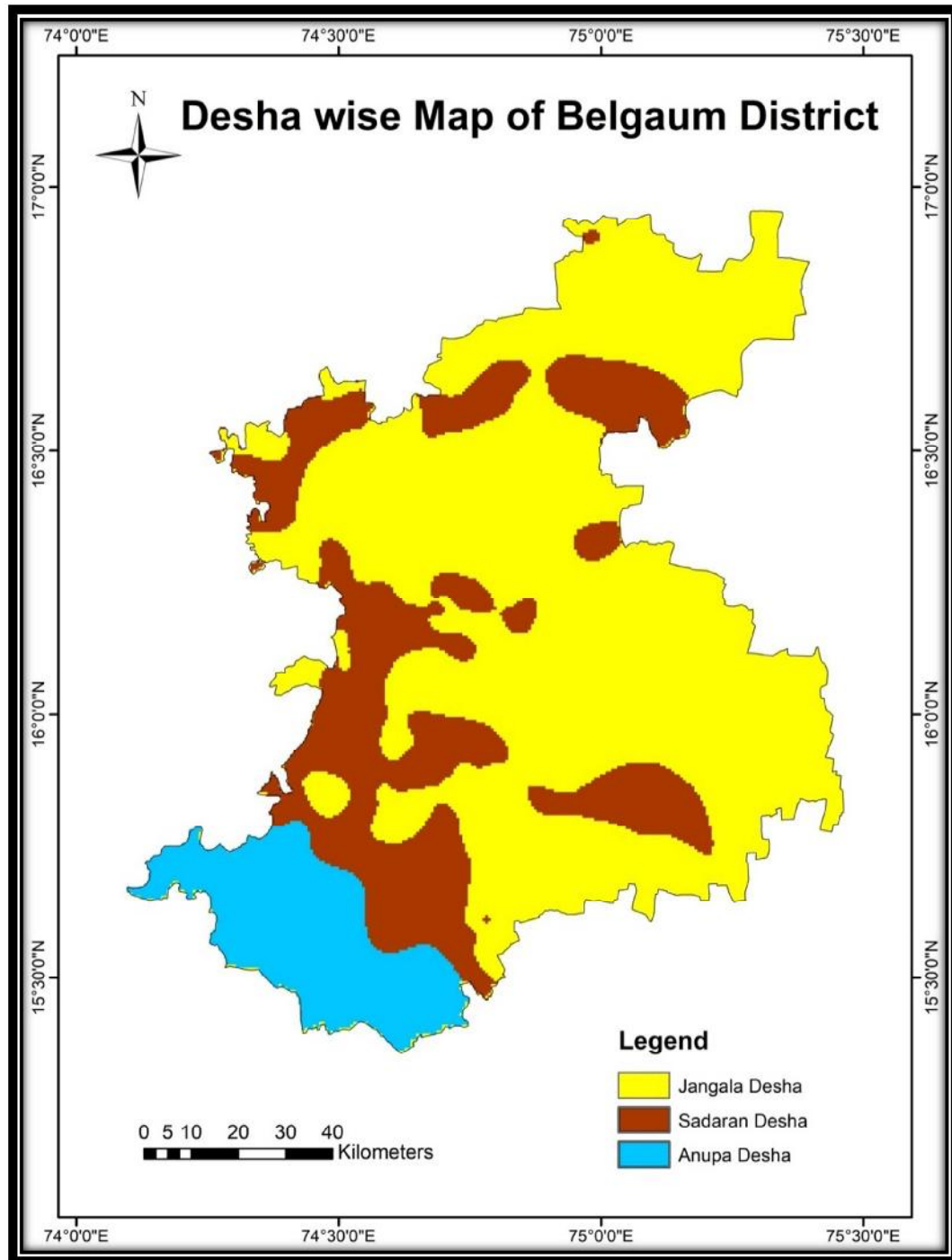
Map No. 4.7 *Bhumi Desha* Map of Belgaum District -Taluka wise



BHUMI DESHA OF MAP – BELGAUM DISTRICT

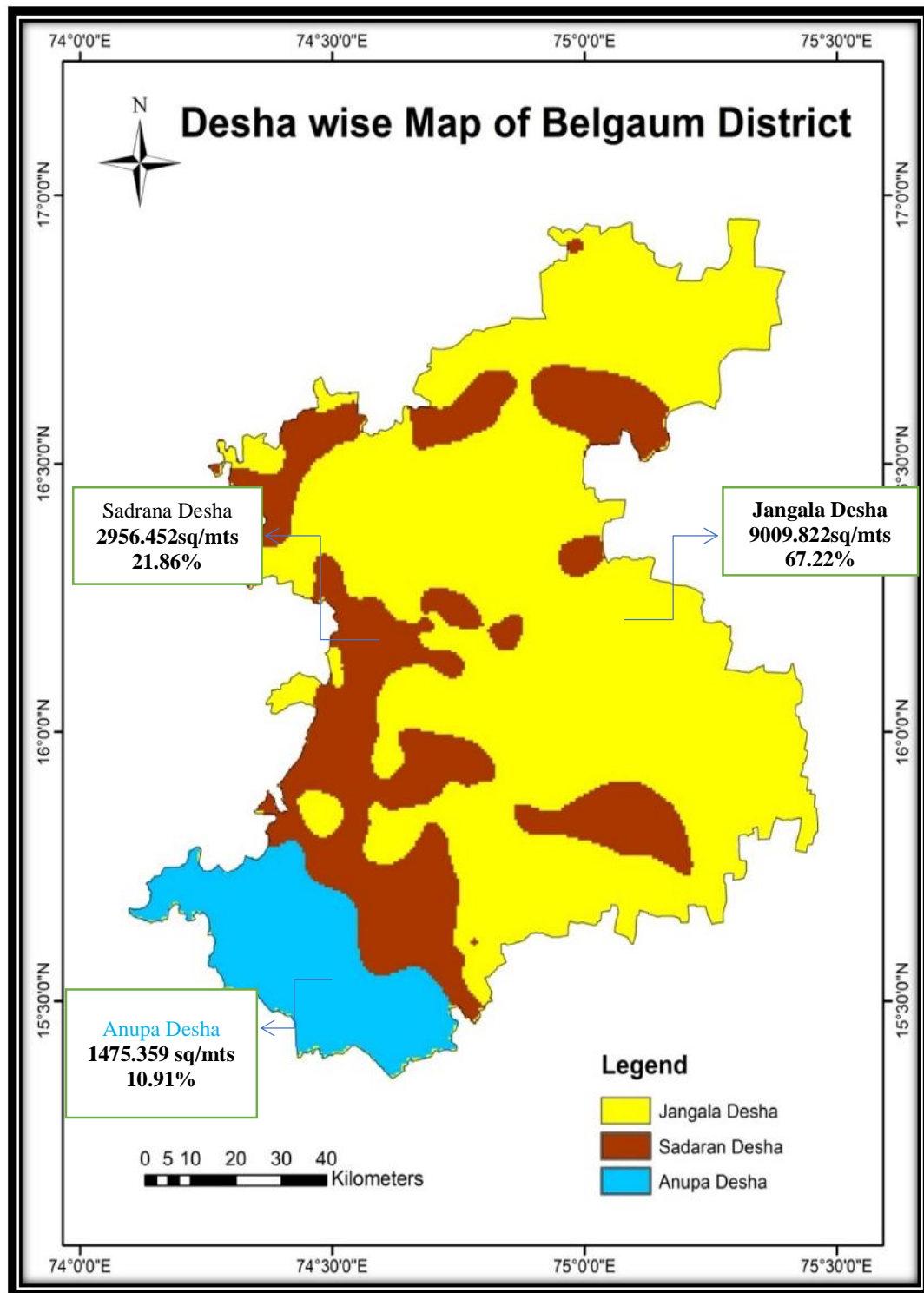
The **Bhumi desha wise map** of different *desha* belonging to Whole Belgaum district were developed.

Map No. 4.8 Bhumi Desha Map of Belgaum District



PERCENTAGE WISE OF BHUMI DESHA OF MAP – BELGAUM DISTRICT

Map No. 4.9 *Bhumi Desha* Map of Belgaum District – Percentage wise



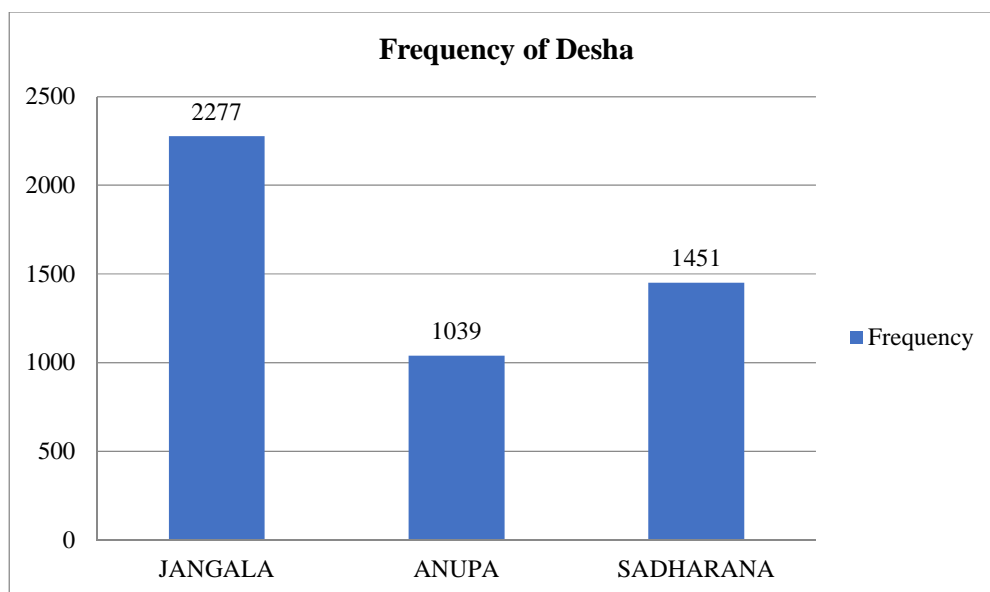
II. DATA RELATED PRAKRUTI:

1. FREQUENCY OF SAMPLES:

Table No -4.3 Frequency of Samples:

SN	TYPES OF DESHA	Frequency	Per cent	Valid Per cent	Cumulative Per cent
1	Jangala	2277	47.8	47.8	47.8
2	Anupa	1039	21.8	21.8	69.6
3	Sadarana	1451	30.4	30.4	100.0
	Total	4767	100.0	100.0	

Graph no-4.1 Distribution of Frequency of Samples (n=4767)



2. AGE:**Table No. 4.4 Distribution of Age:**

AGE		Frequency	Per cent	Valid Percent	Cumulative Per cent
20-60 Yrs	20 - 25	776	16.2	16.2	21.5
	26 - 30	641	13.4	13.4	29.7
	31 - 35	475	10.0	10.0	39.7
	36 - 40	584	12.3	12.3	51.9
	41 - 45	416	8.7	8.7	60.7
	46 - 50	419	8.8	8.8	69.5
	51 - 55	381	8.0	8.0	77.4
	56 - 60	1075	22.6	22.6	100.0
	Total	4767	100.0	100.0	

3. EDUCATION:

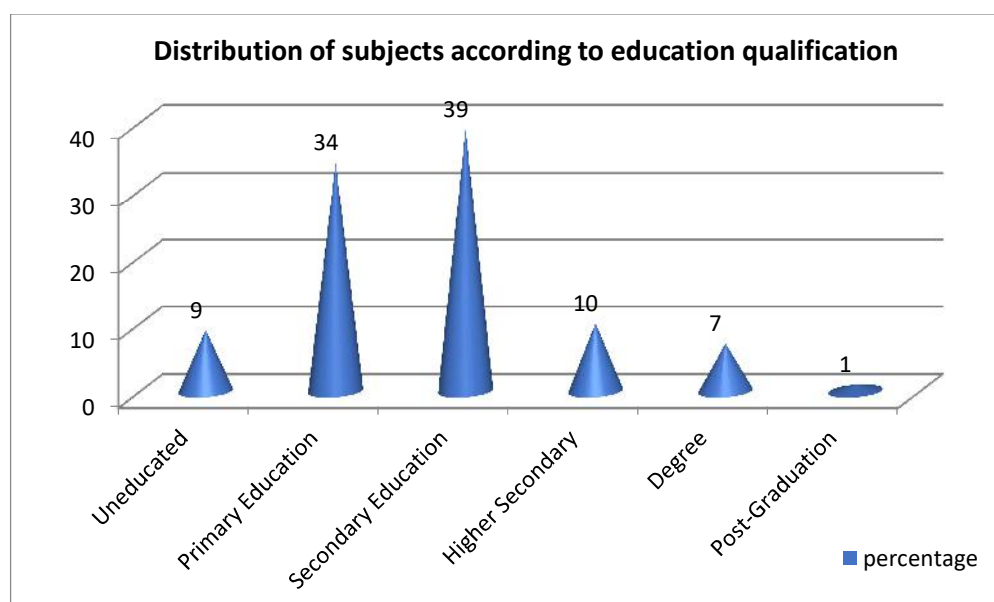
Table No. 4.5 Distribution of subjects according to education qualification

(n=4767)

Education	No of subjects	Percentage
Uneducated	443	9
Primary Education	1643	34
Secondary Education	1867	39
Higher Secondary	474	10
Degree	310	7
Post-Graduation	30	1

Graph no-4.2 Distribution of subjects according to education qualification

(n=4767)

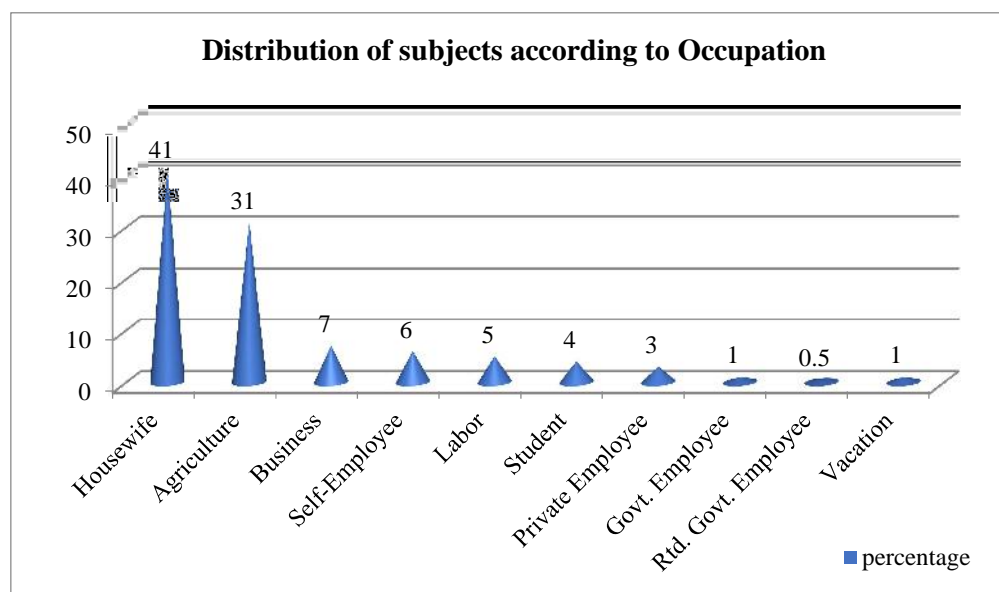


4. OCCUPATION:

Table No 4.6 : Occupation wise distribution of the sample (n=4767):

Occupation	No of subjects	percentage
Housewife	1944	41
Agriculture	1464	31
Business	323	7
Self-Employee	286	6
Labor	231	5
Student	195	4
Private Employee	174	3
Govt. Employee	67	1
Rtd. Govt. Employee	26	0.5
Vacation	57	1

Graph no-4.3 Distribution of subjects according to Occupation (n=4767)

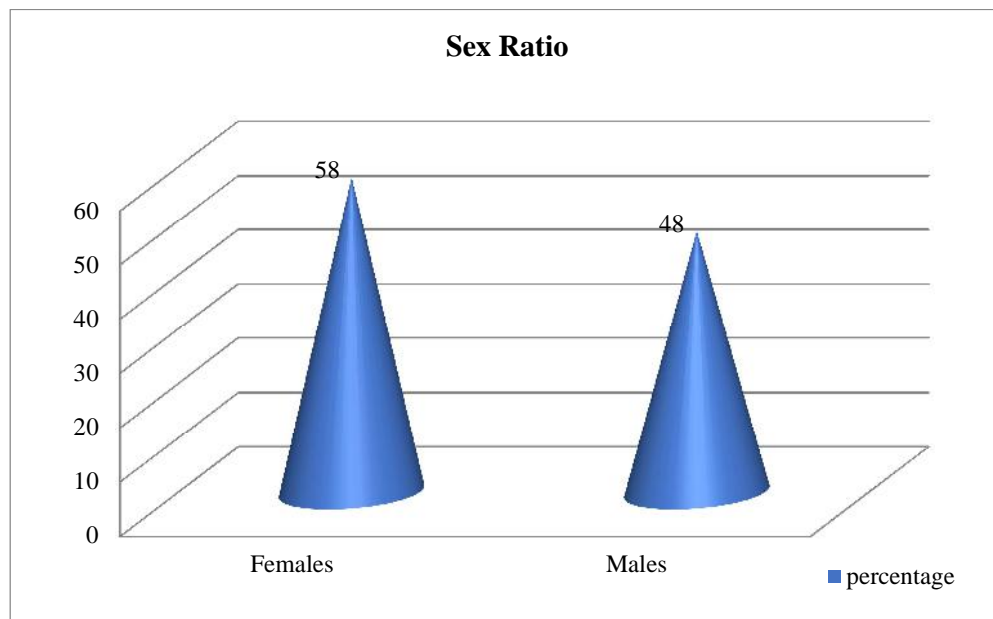


5. SEX RATIO:

Table No 4.7: Distribution of subjects according to Sex ration (n=4767):

Sex Ratio	No of subjects	percentage
Females	2755	58
Males	2012	48

Graph N0-4.4 Distribution of subjects according to Sex ration (n=4767)



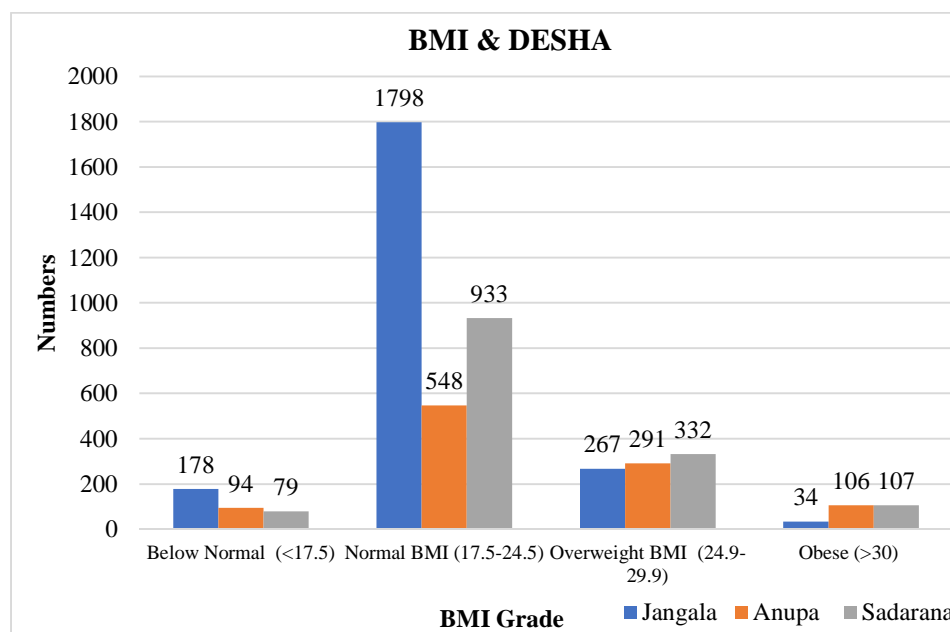
6. ANTHROPOMETRIC DATA:

ASSOCIATION OF BMI WITH *DESHA*:

Table no- 4.8: Distribution of BMI according to *Desha*

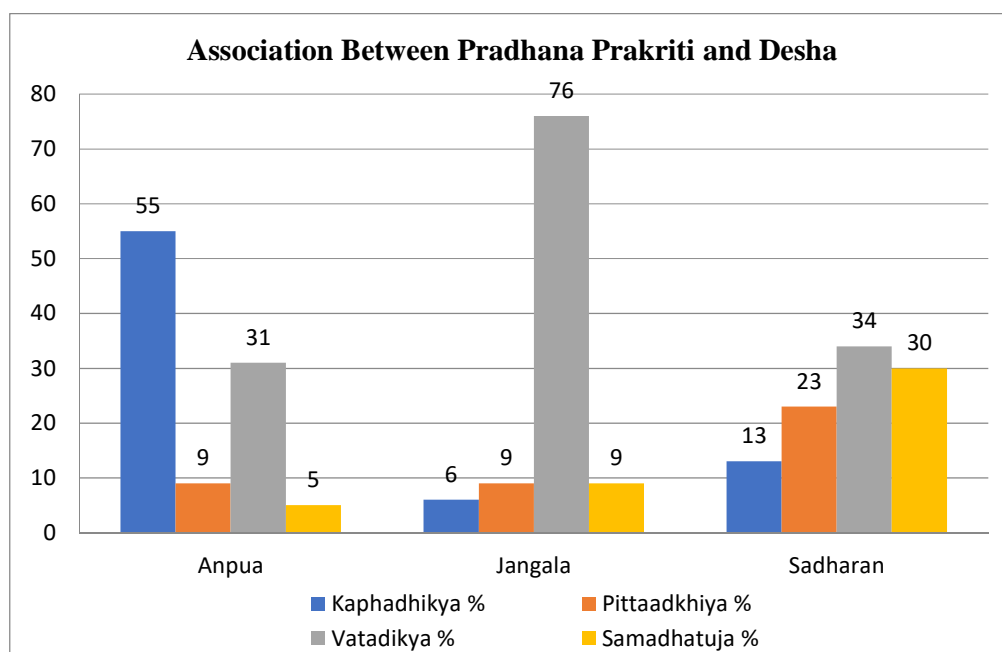
BMI	Total	<i>Jangala</i>		<i>Anupa</i>		<i>Sadarana</i>	
		No	%	No	%	No	%
Below Normal (<17.5)	351	178	7.8%	94	9.0%	79	5.4%
Normal BMI (17.5-24.5)	3279	1798	79.0%	548	52.7%	933	64.3%
Overweight BMI (24.9-29.9)	890	267	11.7%	291	28.0%	332	22.9%
Obese (>30)	247	34	1.5%	106	10.2%	107	7.4%
Total	4767						

Graph no -4.5: Distribution of BMI according to *Desha*



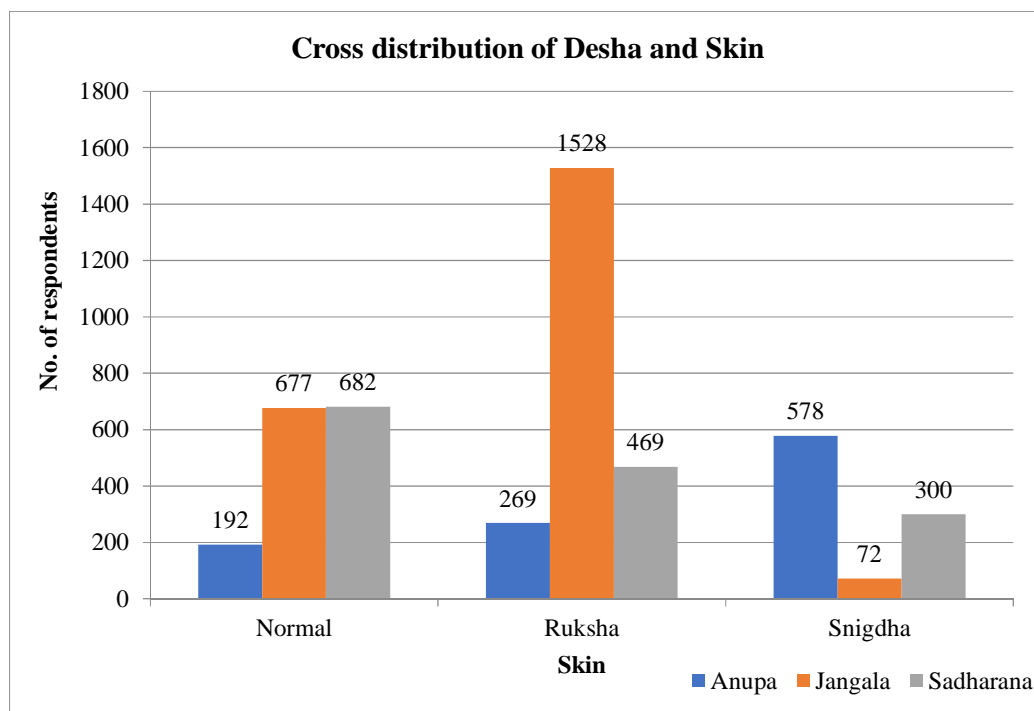
7. ASSOCIATION OF *DESHA* WITH *PRADHANA PRAKRITI*:Table 4.9: Dominant *Prakruti* and *Desha*

<i>Desha</i>	<i>Prakriti</i>							
	<i>Kaphadhikya</i>	%	<i>Pittaadkhiya</i>	%	<i>Vatadikya</i>	%	<i>Samadhatsuja</i>	%
<i>Anpua</i>	569	55	95	9	326	31	49	5
<i>Jangala</i>	141	6	213	9	1723	76	91	9
<i>Sadharan</i>	182	13	339	23	489	34	441	30

Graph No-4.6 Association Between *Pradhanan Prakriti* and *Desha*

8. ASSOCIATION BETWEEN *DESHA* AND SKIN:Table 4.10 : Association Between *Desha* And Skin:

Skin	<i>Desha</i>					
	<i>Anupa</i>		<i>Jangala</i>		<i>Sadharana</i>	
Normal	192	18.4%	677	29.7%	682	47%
Ruksha	269	25.8%	1528	67.1%	469	32.3%
Snigdha	578	55.6%	72	3.1%	300	20.6%

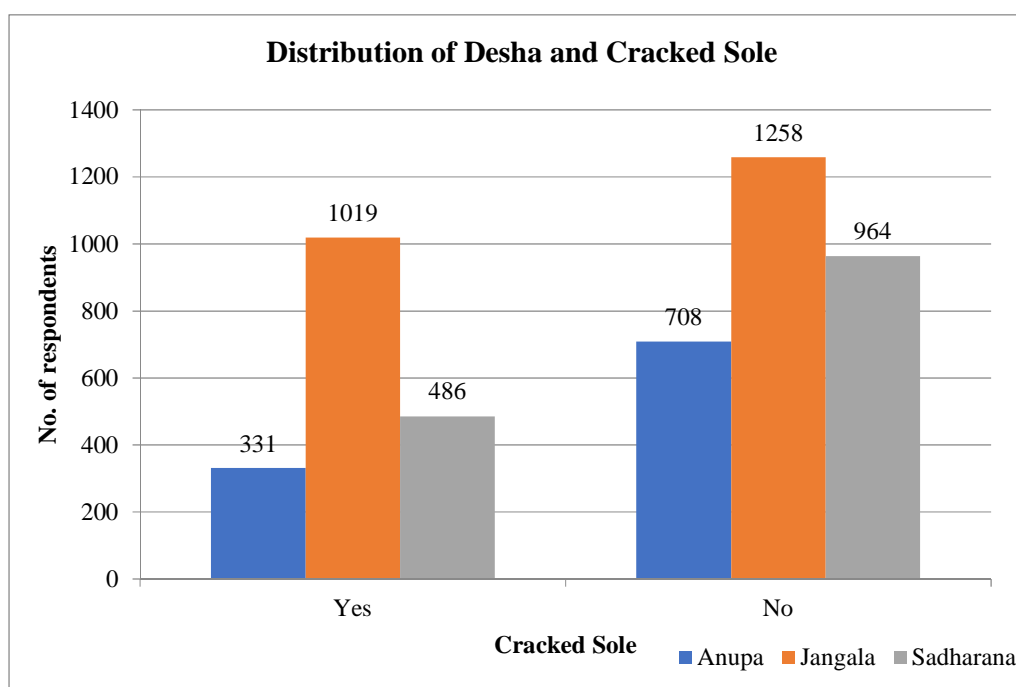
Graph no 4.7 : Association Between *Desha* And Skin:

9. ASSOCIATION BETWEEN DESHA AND CRACKED SOLE:

Table no 4.11: Association between Desha and Cracked Sole

Cracked Sole	Desha					
	Anupa		Jangala		Sadharana	
Yes	331	31.8%	1019	44.7%	486	33.4%
No	708	68.1%	1258	55.2%	964	66.4%

Graph No-4.8 Association Between Desha and Cracked Sole

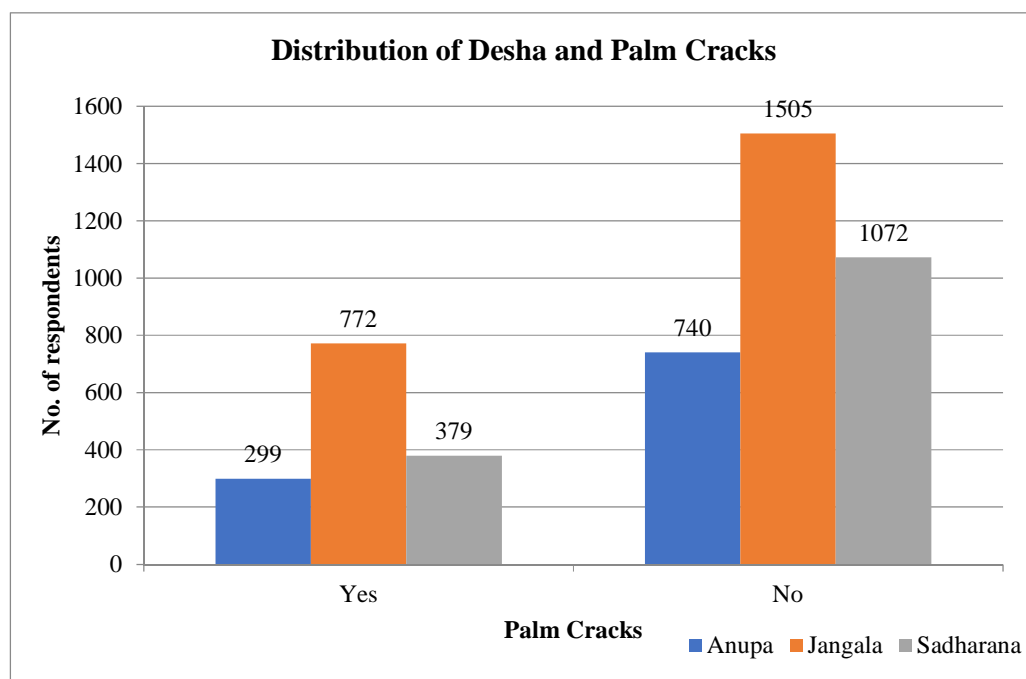


10. ASSOCIATION BETWEEN DESHA AND PALM CRACKS:

Table 4.12: Association between Desha and Palm Cracks

Palm cracks	<i>Desha</i>					
	<i>Anupa</i>		<i>Jangala</i>		<i>Sadharana</i>	
Yes	299	28.7%	772	33.9%	379	26.1%
No	740	71.2%	1505	66%	1072	73.5%

Graph No-4.9: Association Between Desha and Palm Cracks

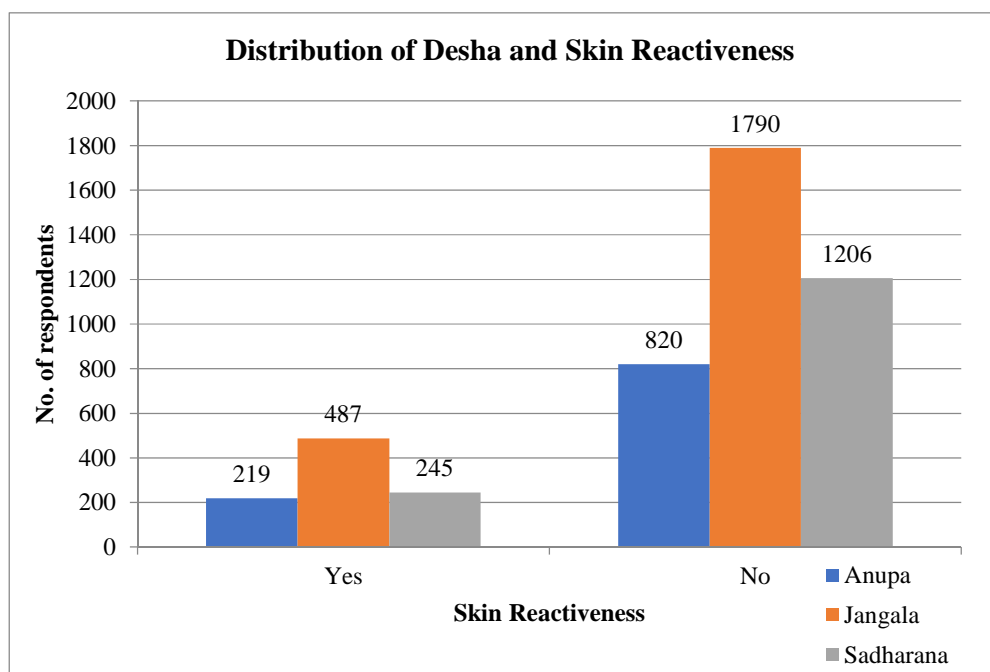


11. ASSOCIATION BETWEEN DESHA AND SKIN REACTIVENESS:

Table 4.13: Association between Desha and Skin Reactiveness

Skin Reactiveness	Desha					
	Anupa		Jangala		Sadharana	
Yes	219	21%	487	21.3%	245	16.8%
No	820	78.9%	1790	78.6%	1206	83.1%

Graph No-4.10: Association Between Desha and Skin Reactiveness

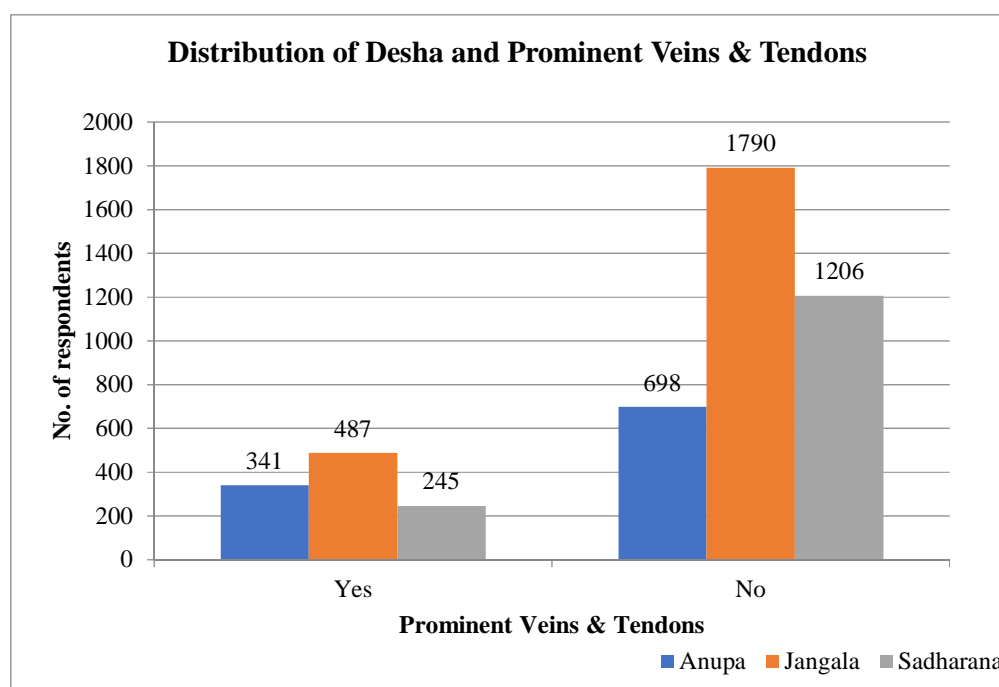


12. ASSOCIATION BETWEEN DESHA AND PROMINENT VEINS & TENDONS:

Table 4.13: Association between Desha and prominent veins and tendons

Prominent veins and tendons	<i>Desha</i>					
	<i>Anupa</i>		<i>Jangala</i>		<i>Sadharana</i>	
Yes	341	32.8%	487	21.3%	245	16.8%
No	698	67.1%	1790	78.6%	1206	83.1%

Graph No-4.11 Association Between Desha and prominent veins and tendons

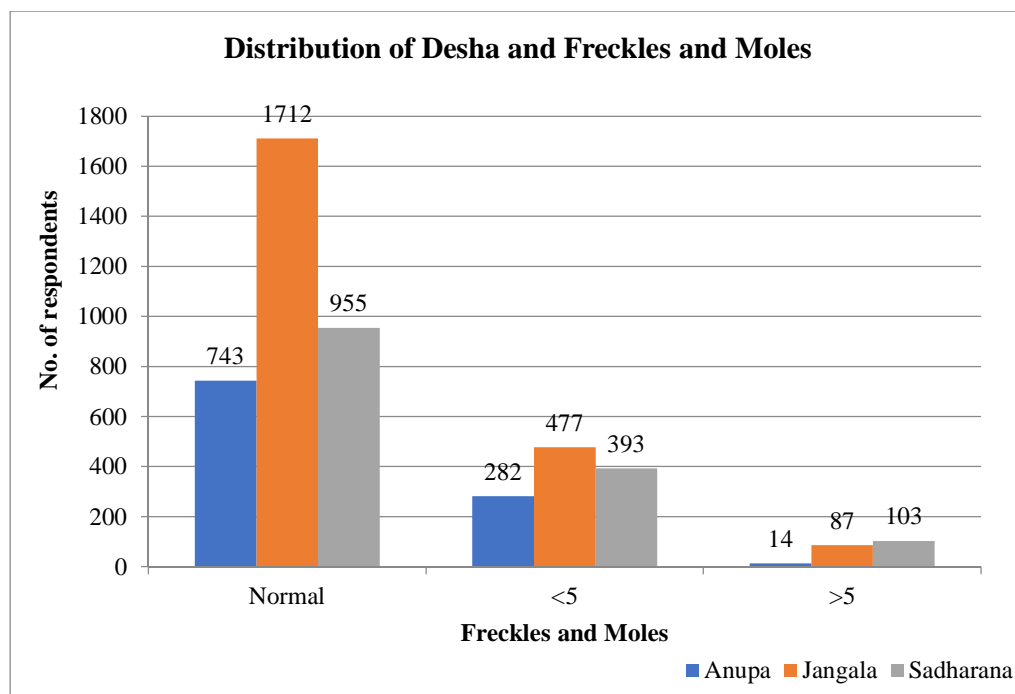


13. ASSOCIATION BETWEEN DESHA AND FRECKLES AND MOLES:

Table no 4.14: Association between Desha and Freckles and Moles

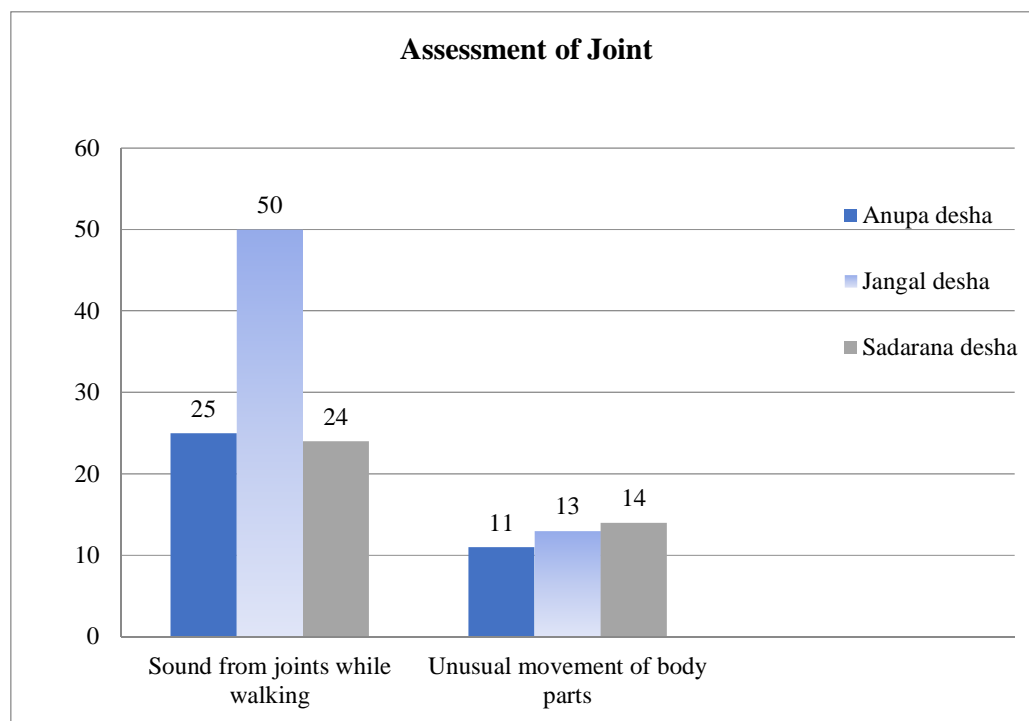
Freckles and Moles	Desha					
	Anupa		Jangala		Sadharana	
Normal	743	71.5%	1712	75.1%	955	65.8%
< 5	282	27.1%	477	20.9%	393	27.2%
> 5	14	1.3%	87	3.8%	103	7%

Graph No-4.12 Association Between Desha and Freckles and Moles



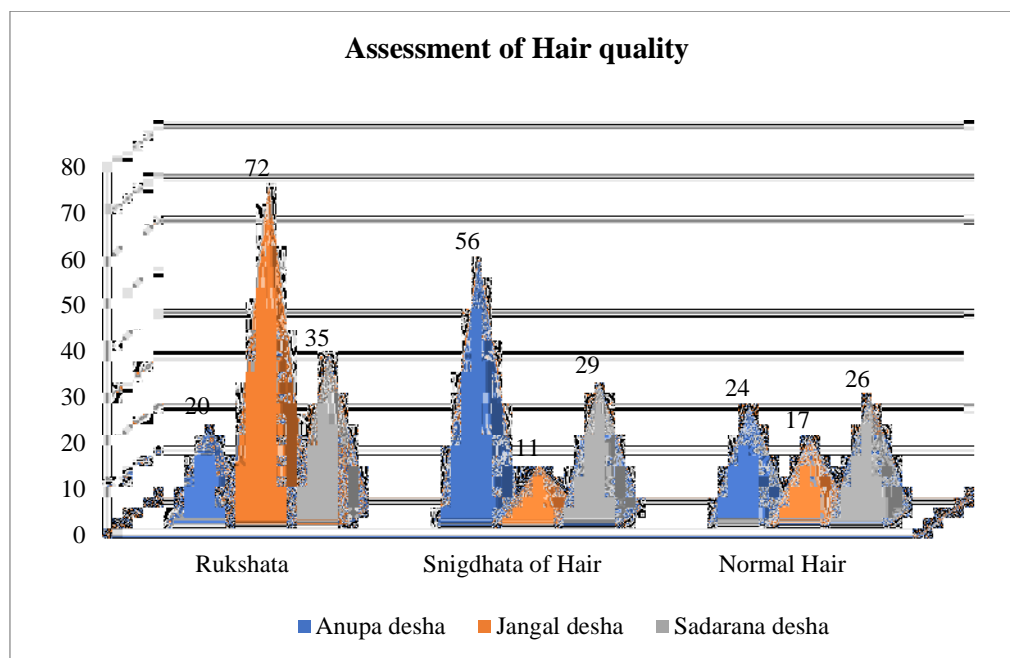
14. ASSESSMENT OF JOINT:**Table No-4.15: Assessment of Joint**

SI No	Variables	<i>Anupa Desha</i>	<i>Jangal Desha</i>	<i>Sadarana Desha</i>
1	Sound from joints while walking	25%	50%	24%
2	Unusual movement of body parts	11%	13%	14%

Graph no-4.13: Joint Assessment:

15. ASSESSMENT OF HAIR:**a. Assessment of Hair quality****Table no- 4.16 -Assessment of Hair quality:**

SI No	Variables	<i>Anupa Desha</i>	<i>Jangal Desha</i>	<i>Sadarana Desha</i>
	Hair quality Assessment			
1	Rukshata of Hair	20%	72%	35%
2	Snigdhatata of Hair	56%	11%	29%
3	Normal Hair	24%	17%	26%

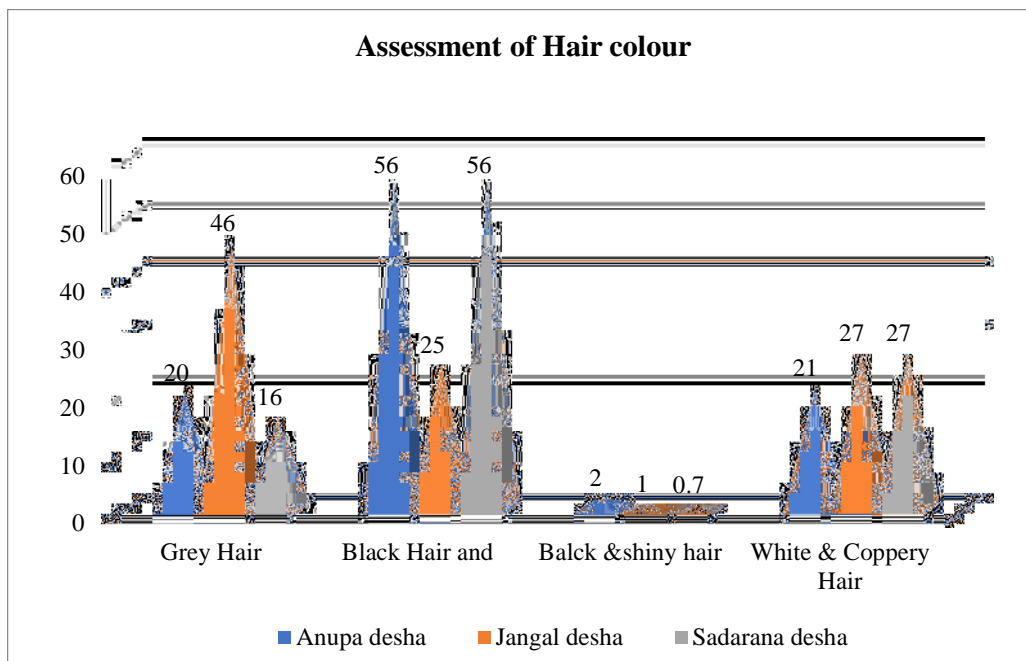
Graph No 4.14- Assessment of Hair quality:

b. Assessment of Hair colour:

Table no 4.17:- Assessment of Hair colour:

SI No	Variables	Anupa Desha	Jangal Desha	Sadarana Desha
	Hair Colour			
1	Grey Hair	20%	46%	16%
2	Black Hair	56%	25%	56%
3	Balck & shiny hair	2%	1%	0.7%
4	White & Coppery Hair	21%	27%	27%

Graph No 4.15: Assessment of Hair colour:

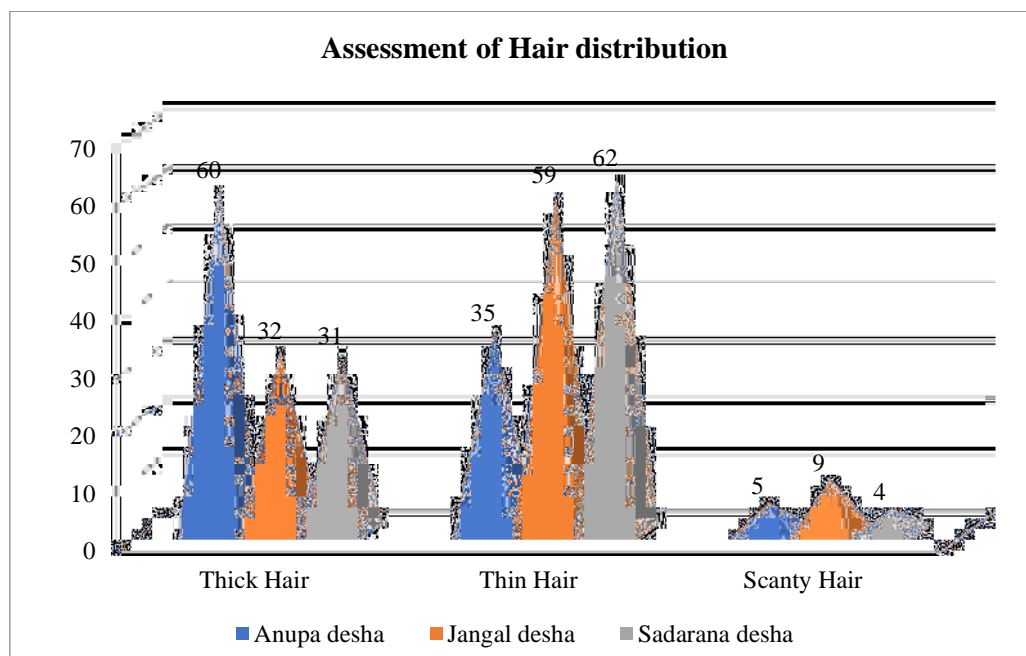


c. Assessment of Hair distribution:

Table no 4.18 Assessment of Hair Distribution:

SI No	Variables	Anupa Desha	Jangal Desha	Sadarana Desha
	Hair Distribution			
1	Thick Hair	60%	32%	31%
2	Thin Hair	35%	59%	62%
3	Scanty Hair	5%	9%	4%

Graph no- 4.16: Assessment of Hair distribution:

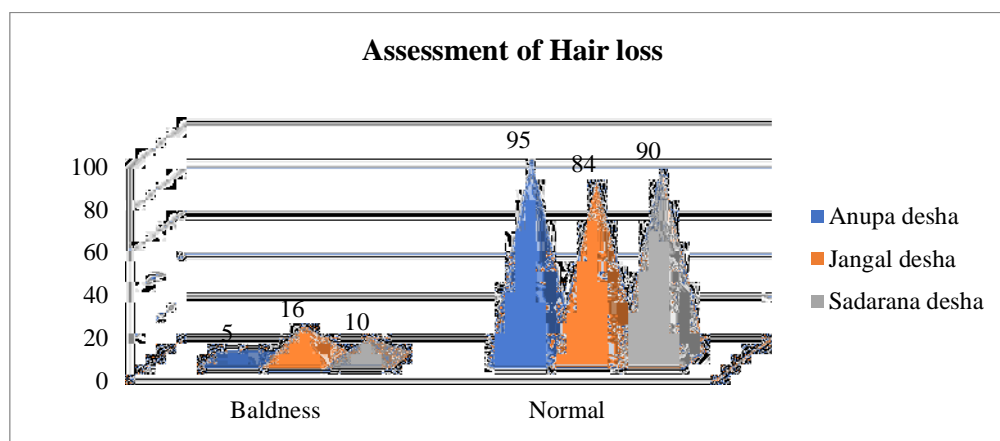


d. Assessment of Hair Loss:

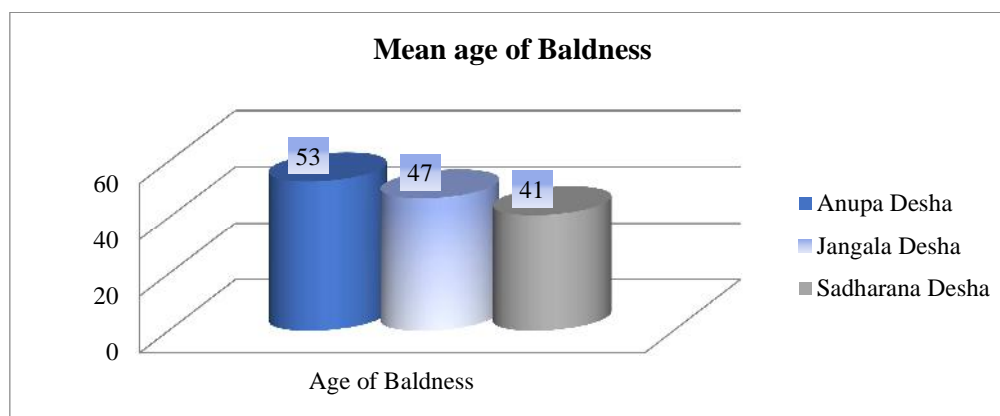
Table no 4.19: Assessment of Hair loss:

SI No	Variables	Anupa Desha	Jangal Desha	Sadarana Desha
	Hair loss assessment			
1	Baldness	5	16	10
2	Normal	95	84	9

Graph no- 4.17: Assessment of Hair loss:

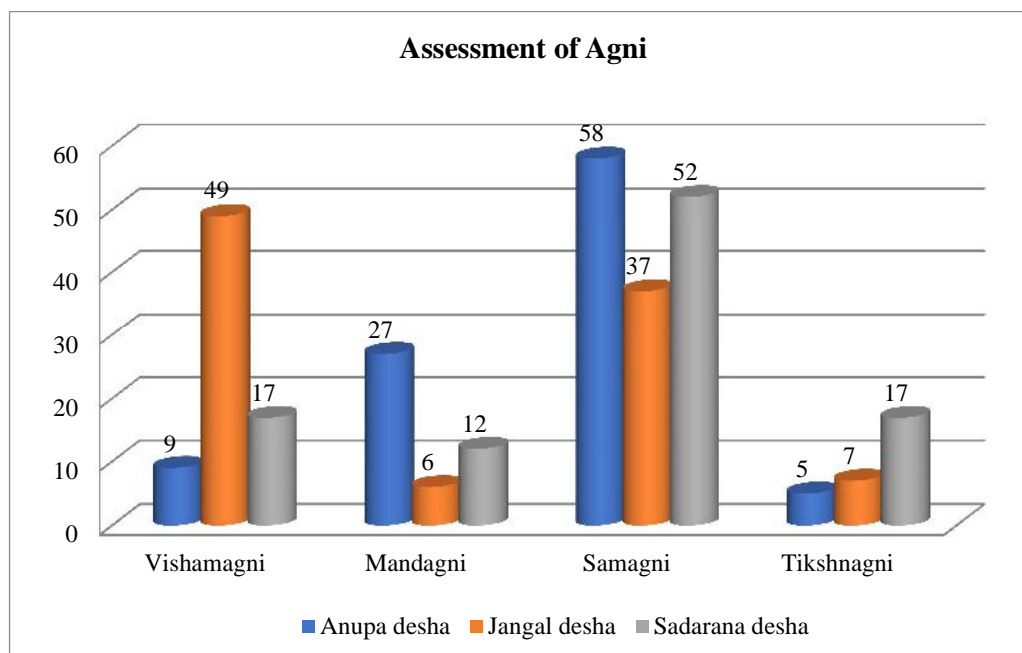


Graph no-4.18: Mean age of Bladness



16. ASSESSMENT OF AGNI:**Table no 4.20: Assessment of Agni:**

SI No	Variables	<i>Anupa Desha</i>	<i>Jangal Desha</i>	<i>Sadarana Desha</i>
	Assessment of Agni			
1	<i>Vishamagni</i>	9	49	17
2	<i>Mandagni</i>	27	6	12
3	<i>Samagni</i>	58	37	52
4	<i>Tikshnagni</i>	5	7	17

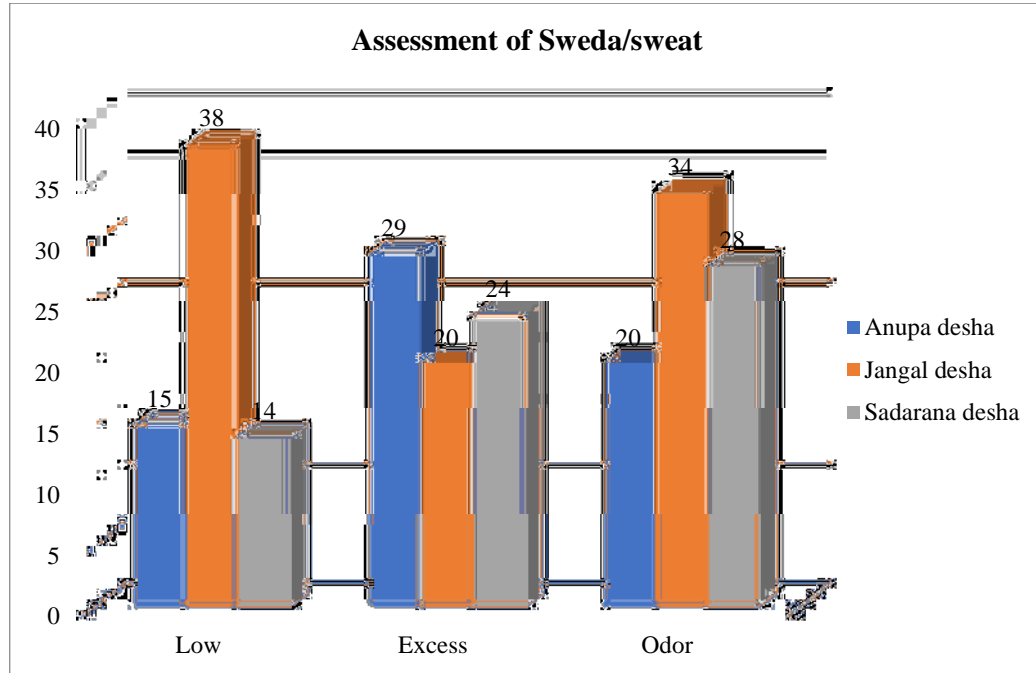
Graph no 4.19: Assessment of Agni:

17. ASSESSMENT OF SWEDA/SWEAT:

Table no 4.21 Assessment of Sweda/sweat:

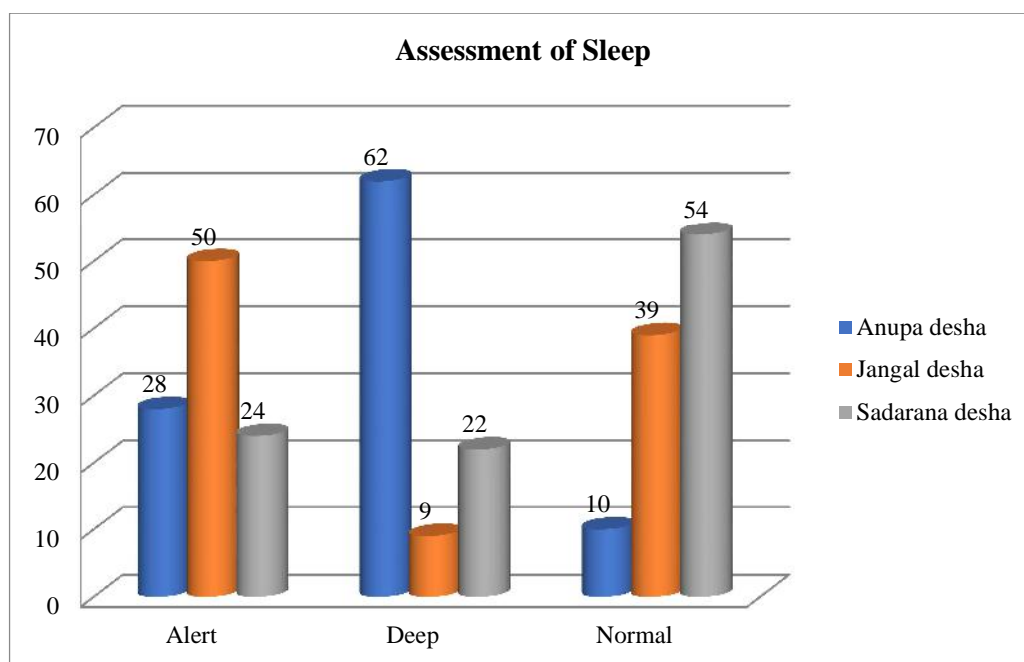
SI No	Variables	<i>Anupa Desha</i>	<i>Jangal Desha</i>	<i>Sadarana Desha</i>
	Assessment of Sweda			
1	Low	15	38	14
2	Excess	29	20	24
3	Odor	20	34	28

Graph no 4.20: Assessment of Sweda/sweat:



18. ASSESSMENT OF SLEEP PATTERN:**Table no 4.22: Assessment of Sleep:**

SI No	Variables	<i>Anupa Desha</i>	<i>Jangal Desha</i>	<i>Sadarana Desha</i>
	Sleep			
1	Alertness	28	50	24
2	Deep sleep	62	9	22
3	Normal sleep	10	39	54

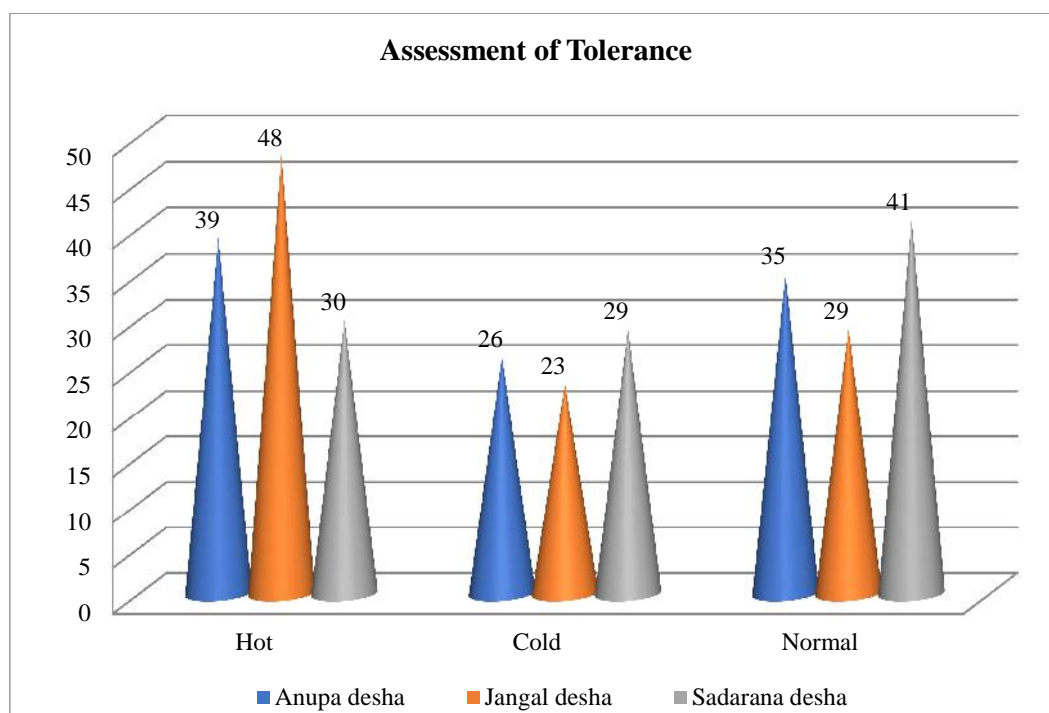
Graph no 4.21: Assessment of Sleep:

19. ASSESSMENT OF TOLERANCE OF PERSON:

Table no 4.23 Assessment of Tolerance:

SI No	Variables	<i>Anupa Desha</i>	<i>Jangal Desha</i>	<i>Sadarana Desha</i>
	Assessment of Tolerance			
1	Hot	39	48	30
2	Cold	26	23	29
3	Normal	35	29	41

Graph no4.22: Assessment of Tolerance:

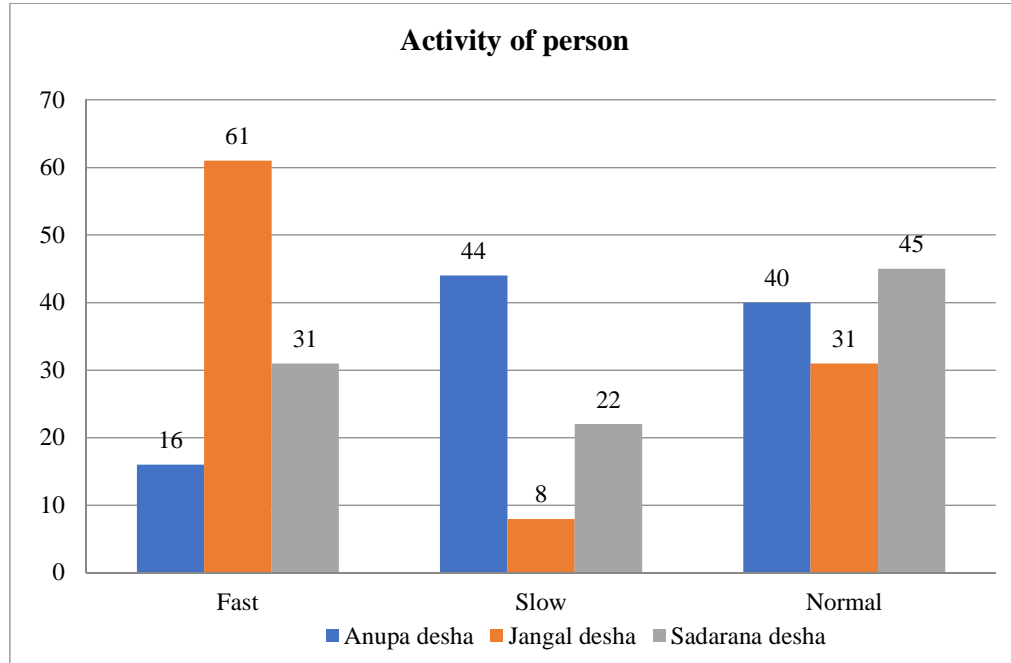


20. ASSESSMENT OF OVERALL ACTIVITY OF PERSON:

Table no 4.24 : Assessment of Activity:

SI No	Variables	<i>Anupa Desha</i>	<i>Jangal Desha</i>	<i>Sadarana Desha</i>
	Overall Activity			
1	Fast	16	61	31
2	Slow	44	8	22
3	Normal	40	31	45

Graph no 4.23: Assessment of activity of subjects:

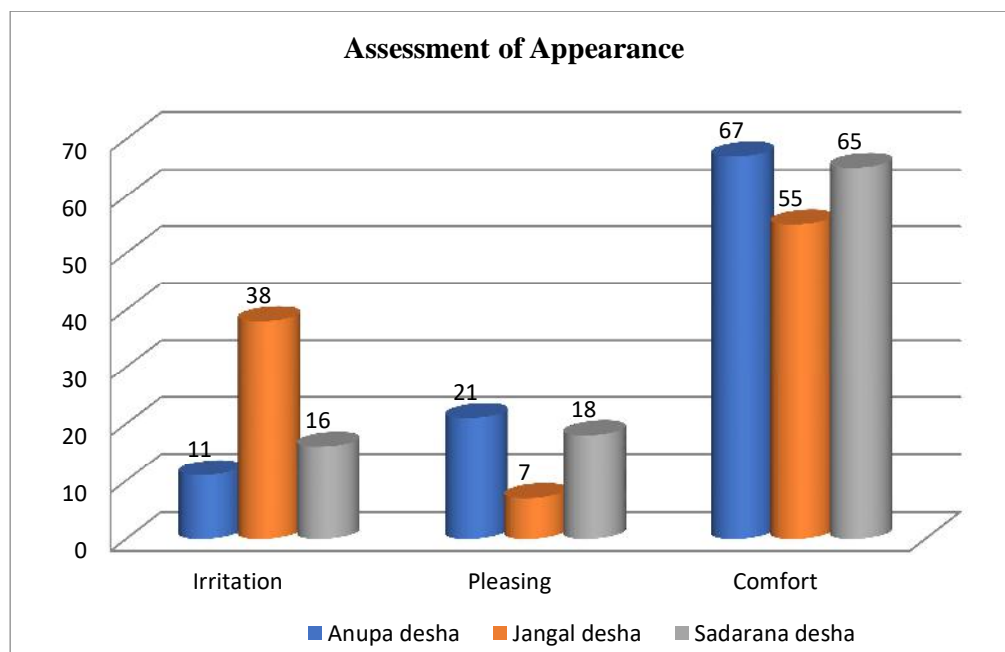


21. ASSESSMENT OF APPEARANCE OF SUBJECTS:

Table No 4.25: Assessment of Appearance subjects:

SI No	Variables	<i>Anupa Desha</i>	<i>Jangal Desha</i>	<i>Sadarana Desha</i>
	Appearance			
1	Irritation	11	38	16
2	Pleasing	21	7	18
3	Comfort	67	55	65

Graph no 4.24: Assessment of Appearance:

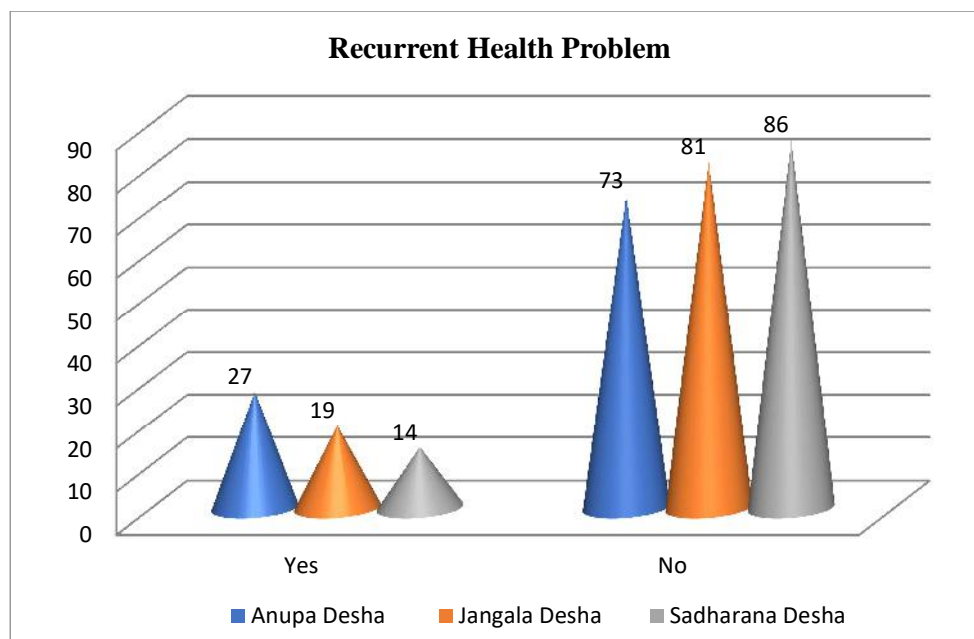


22. ASSESSMENT OF ASSOCIATION BETWEEN DESHA AND RECURRENT HEALTH PROBLEMS

Table no 4.26: Assessment of recurrent health problem:

Recurrent health problems	<i>Desha</i>		
	<i>Anupa</i>	<i>Jangala</i>	<i>Sadharana</i>
Yes	284	431	196
No	755	1846	1253

Graph no 4.25: Assessment Recurrent Health Problem:



III. STATISTICAL ANALYSIS

1. Association between Desha and Prakriti

Table 4.27: Association of Desha and dominant Prakriti

<i>Desha</i>	<i>Prakriti</i>				<i>d.f.</i>	<i>The chi-square statistic</i>	<i>P-value</i>
	<i>Kaphadhikya</i>	<i>Pittaadhikya</i>	<i>Vataadhikya</i>	<i>Samadhataja</i>			
<i>Anpua</i>	569	95	326	49	6	2046.8	< 0.001
<i>Jangala</i>	141	213	1723	91			
<i>Sadharan</i>	182	339	489	441			

2. Association between Desha and Prakriti Parameters

Table No: 4.28: Showing Association between variables of Prakriti parameters and Desha:

Sl No	Assessment Parameter	Variables	Desha			df	Chi-square
			Anupa Desha	Jangala Desha	Sadarana Desha		
1	Quality of Skin	Normal	192	677	682	4	1504.6***
		Ruksha	269	1528	469		
		Snigdha	578	72	300		
2	Softness of skin	Yes	551	573	641	2	283.37***
		No	488	1704	810		
3	Cracked sole	Yes	331	1019	486	2	72.137***
		No	708	1258	964		
4	Palm cracks	Yes	299	772	379	2	27.061***
		No	740	1505	1072		
5	Skin reactiveness	Yes	219	487	245	2	12.311*** (0.002)
		No	820	1790	1206		
6	prominent vein and tendons	Yes	6	487	245	2	191.27***
		No	820	1790	1206		
7	Number of freckles/black moles	0	743	1712	955	4	78.48***
		< 5	282	477	393		
		> 5	14	87	103		
8	Sound from joints while walking	Yes	256	1148	356	2	341.44***
		No	783	1128	1095		
9	Hair Quality	Normal	251	517	512	4	1002.3***
		Ruksha	209	1515	510		
		Snigdha	579	245	429		
10	Hair colour	Black	587	588	816	6	574.6***
		Black & Shiny	12	24	11		
		Grey	217	1047	234		
		White & Coppery	223	618	390		
11	Hair distribution	Plenty	1	6	17	8	300.76***
		Scanty	60	215	71		
		Thick	614	732	461		
		Thin	364	1324	902		
12	Baldness of Hair	Yes	55	369	155	2	83.846***
		No	984	1907	1295		

13	Feature of Agni	Mandagni	287	127	182	6	965.15***
		Samagni	603	852	760		
		Tikshnagni	53	179	256		
		Vishamagni	96	1119	253		
14	Type of Sweda	Low	153	861	205	4	353.95***
		Normal	587	939	890		
		Excess	299	477	355		
15	Sweat odour	Yes	212	771	406	2	63.918***
		No	827	1506	1045		
16	Sleep pattern	Alert	290	1153	347	4	1303.2***
		Normal	104	899	783		
		Deep	645	225	321		
17	Nature of Tolerance	Cold	267	520	419	4	115.61***
		Normal	370	677	598		
		Hot	402	1080	434		
18	Over all Activity	Fast	170	1391	462	4	894.82***
		Normal	416	701	658		
		Slow	453	184	327		
19	Appearance	Irritating	120	863	245	4	419.32***
		Comfort	691	1248	942		
		Pleasing	228	166	264		
20	Recurrent Health Problem	Yes	284	431	196	2	74.704***
		No	755	1846	1253		

*****P<0.0001**

3. Correlation *Desha* and *Prakriti*:

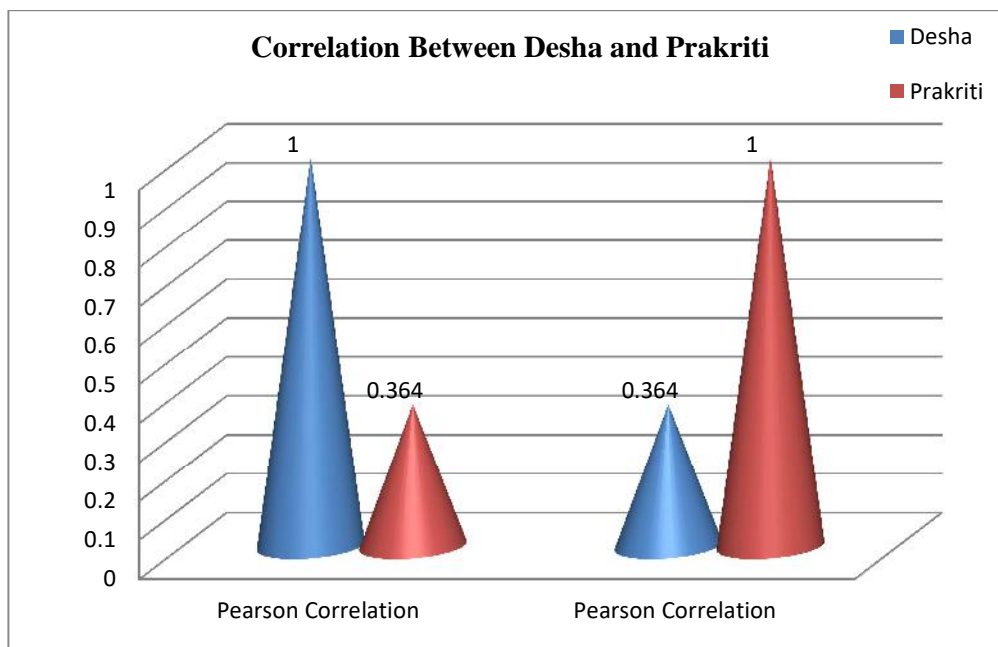
Table 4.29: Correlation of *Desha* and *Prakriti*:

There is a Positive Correlation and significant correlation found Between *Desha* and *Prakriti*.

Correlations			
		<i>Desha</i>	<i>Prakriti</i>
<i>Desha</i>	Pearson Correlation	1	.364**
	Sig. (2-tailed)		.000
	N	4767	4767
<i>Prakriti</i>	Pearson Correlation	.364**	1
	Sig. (2-tailed)	.000	
	N	4767	4767

** Correlation is significant at the 0.01 level (2-tailed).

Graph no 4.26: Correlation of *Desha* and *Prakriti*:



4. Association of Desha and Morbidity

Table no 4.30a- Association of Desha and Morbidity

Source	d.f.	Sum of squares	Mean sum of squares	F –value	P-value
<i>Desha</i>	2	63.6	31.81	67.01	< 0.001
Residuals	4764	2261.4	0.47		

Table no 4.30b- Association of Desha and Morbidity

Statistic	<i>Desha</i>		
	<i>Anupa</i>	<i>Jangala</i>	<i>Sadharan</i>
Mean	0.65	0.36	0.42
S.D.	0.75	0.63	0.73

5. Frequency of common cold per year

Table no 4.31a: Frequency of common cold per year

Source	d.f.	Sum of squares	Mean sum of squares	F –value	P-value
Desha	2	147	73.60	86.72	< 0.001
Residuals	4764	4043	0.85		

Table no 4.31b: Frequency of common cold per year

Statistic	<i>Desha</i>		
	<i>Anupa</i>	<i>Jangala</i>	<i>Sadharan</i>
Mean	0.36	0.55	0.14
S.D.	0.88	1.10	0.58

6. Frequency of fever per year

Table no 4.32a: Frequency of fever per year

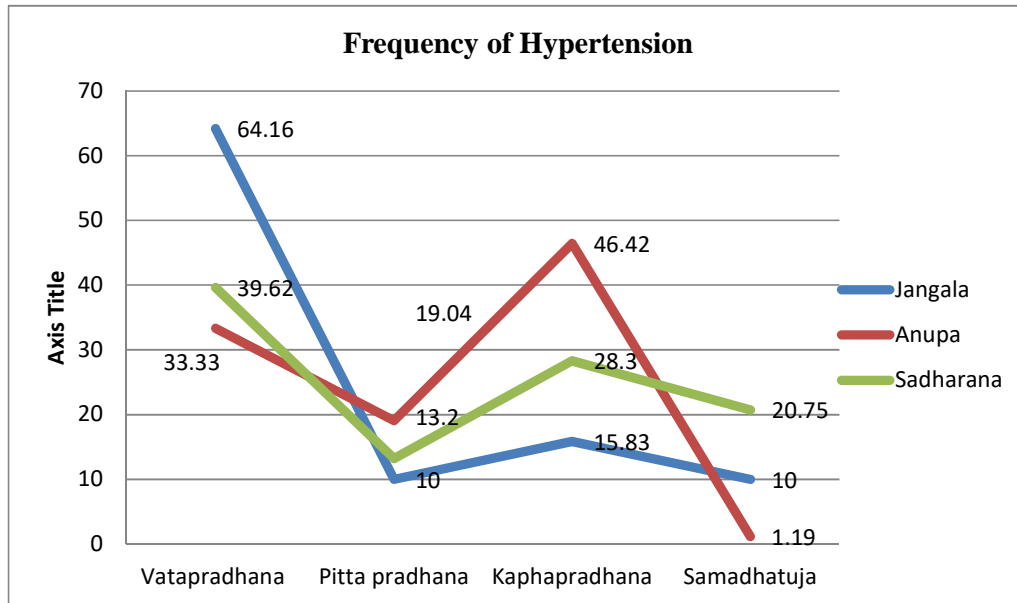
Source	d.f.	Sum of squares	Mean sum of squares	F –value	P-value
Desha	2	126	62.80	85.61	< 0.001
Residuals	4744	3480	0.73		

Table no 4.32b: Frequency of fever per year

Statistic	<i>Desha</i>		
	<i>Anupa</i>	<i>Jangala</i>	<i>Sadharan</i>
Mean	0.39	0.49	0.11
S.D.	0.99	1.00	0.38

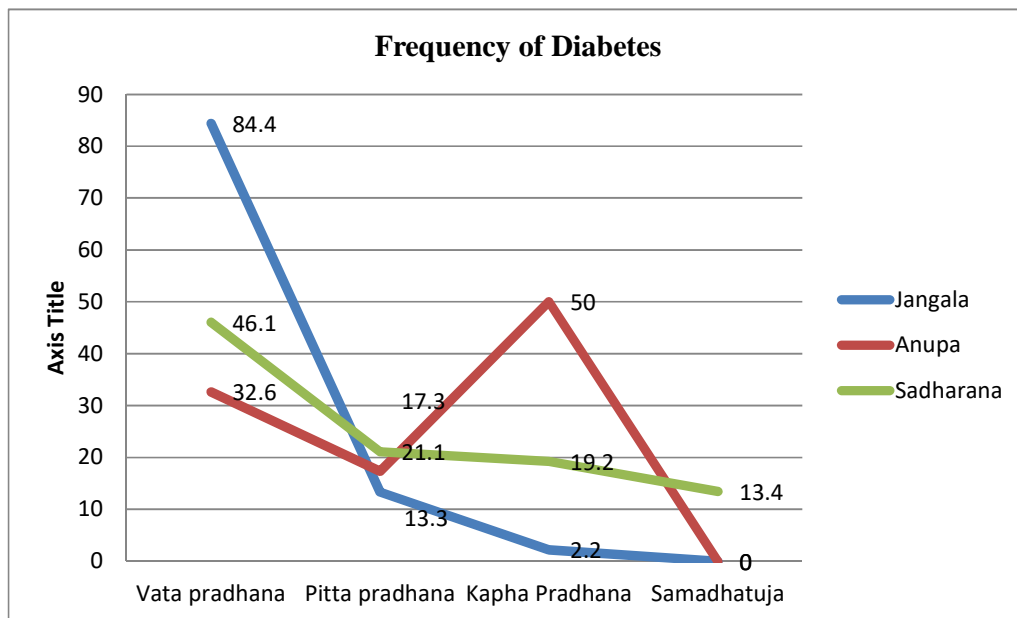
7. Frequency of Hypertension:

Graph no: 4.27: Frequency of Hypertension



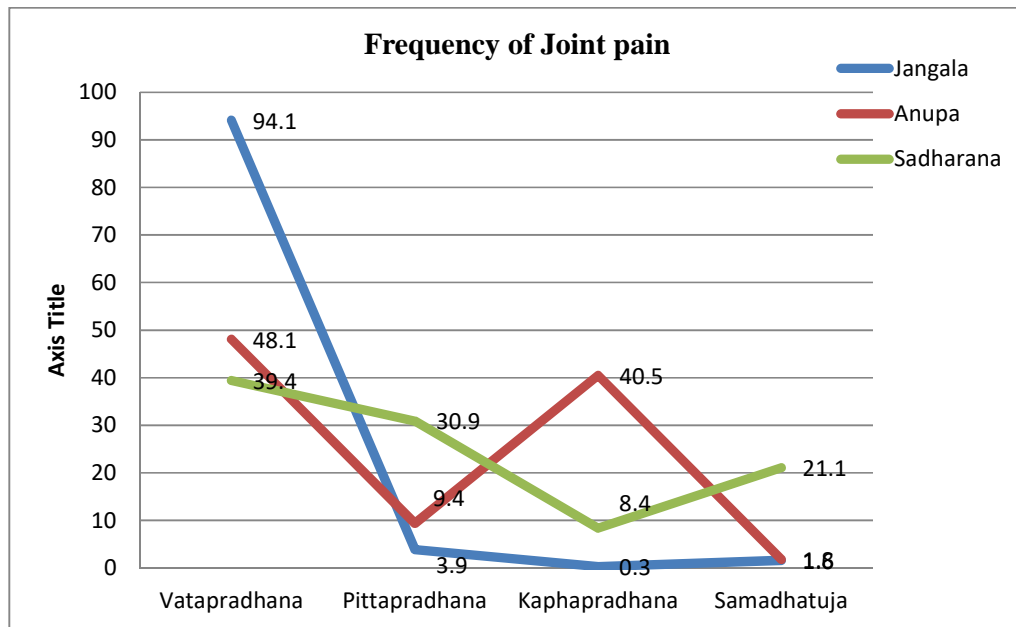
8. Frequency of Diabetes:

Graph no: 4.28: Frequency of Diabetes



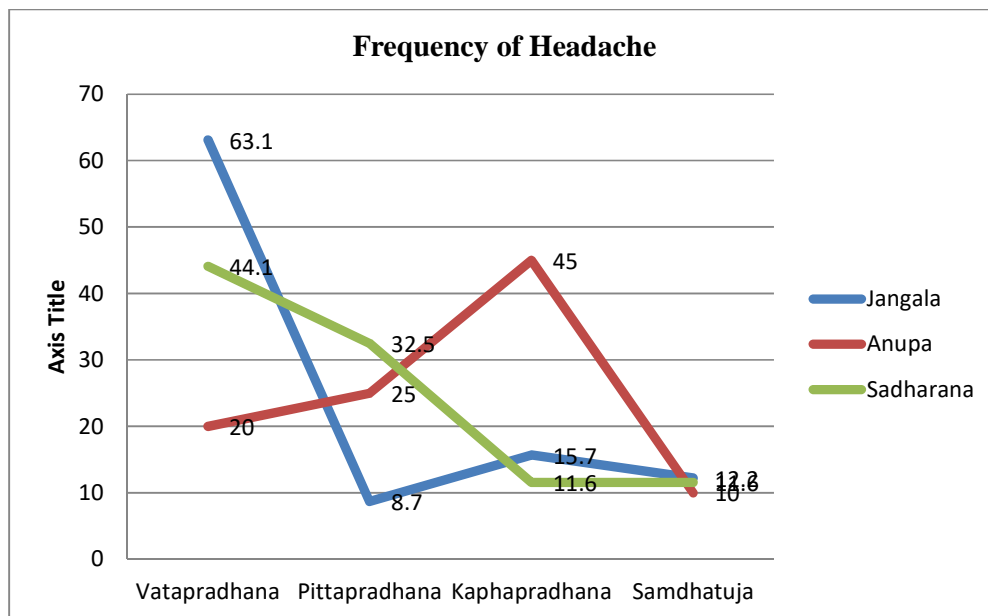
9. Frequency of Joint Pain

Graph no: 4.29: Frequency of Joint pain



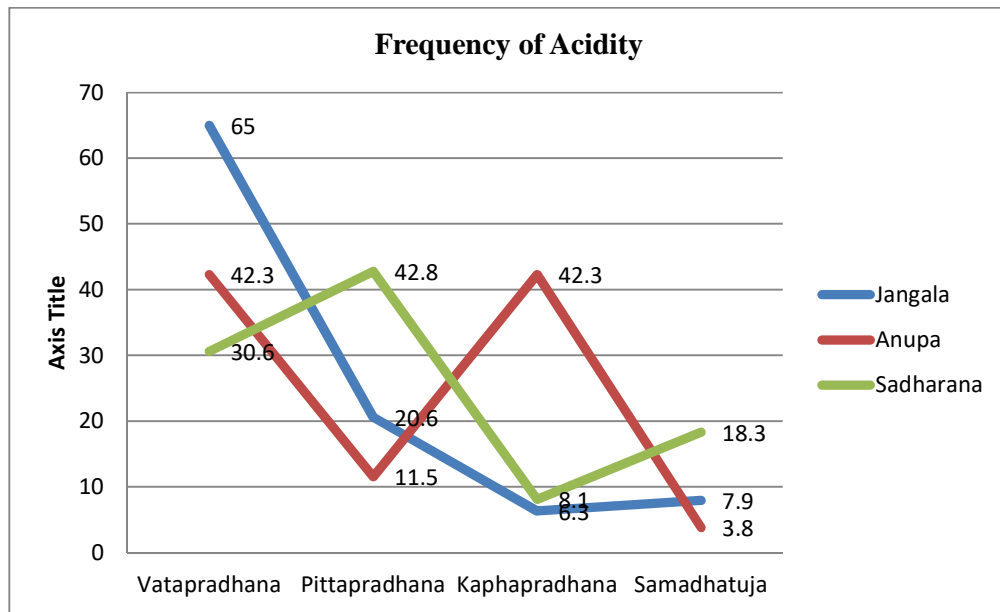
10. Frequency of Headache:

Graph no: 4.30: Frequency of Headache:



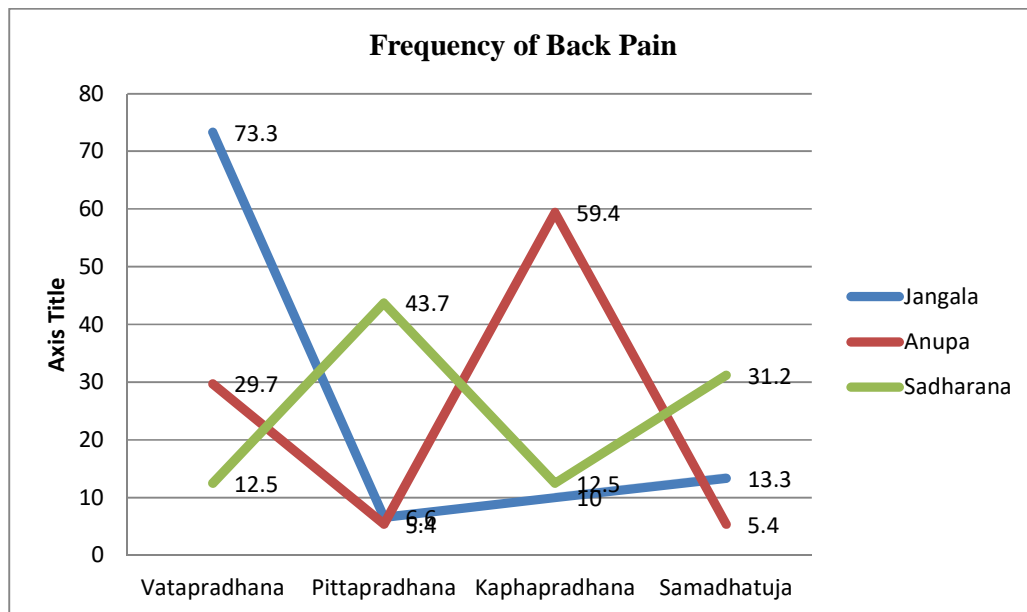
11. Frequency of Acidity:

Graph no: 4.31: Frequency of Acidity:



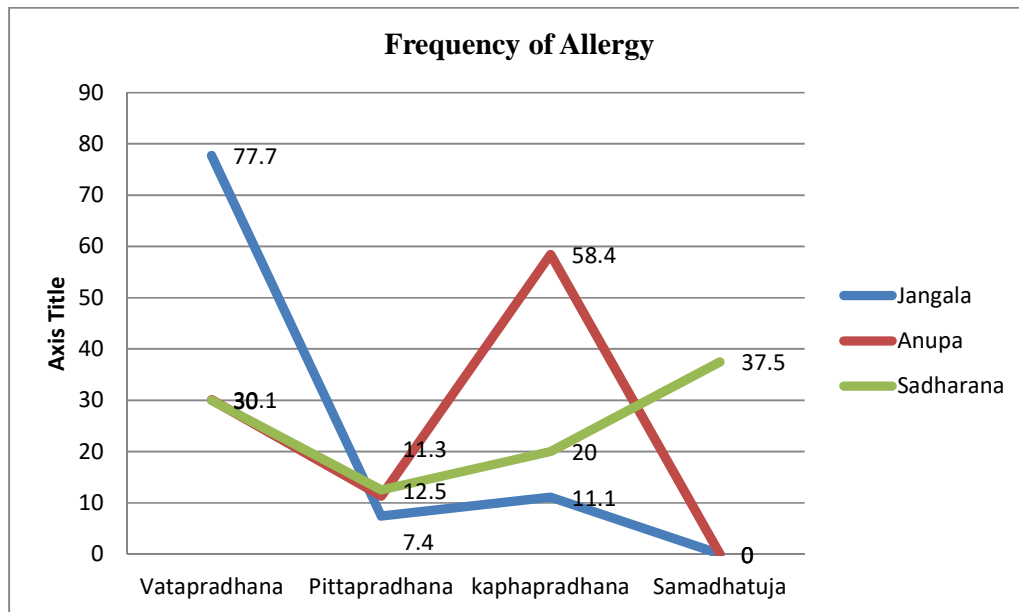
12. Frequency of Back pain:

Graph no: 4.32: Frequency of Back pain:



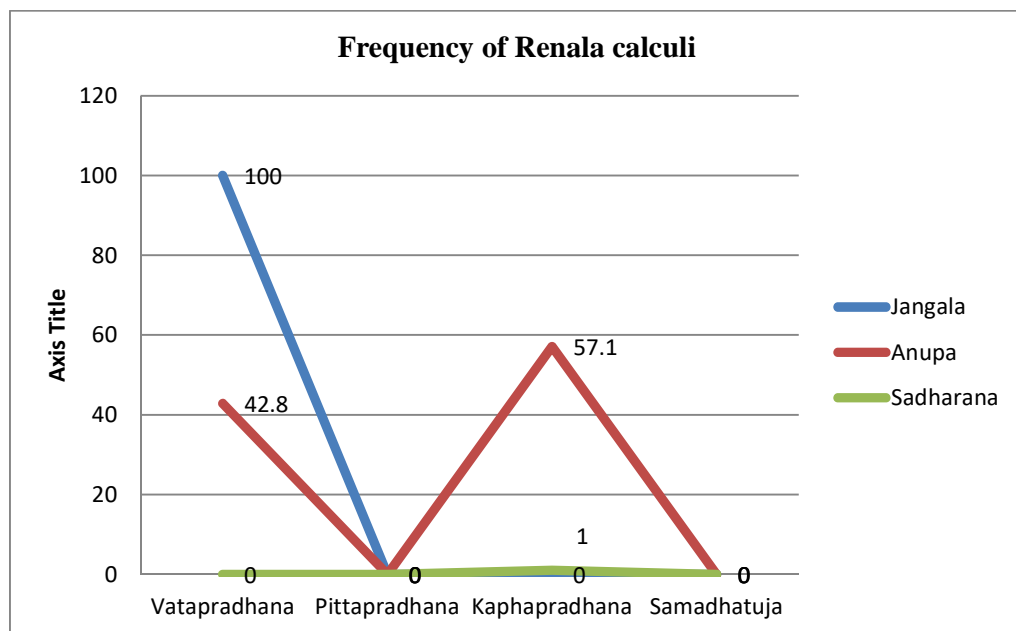
13. Frequency of Allergy:

Graph no: 4.33: Frequency of Allergy



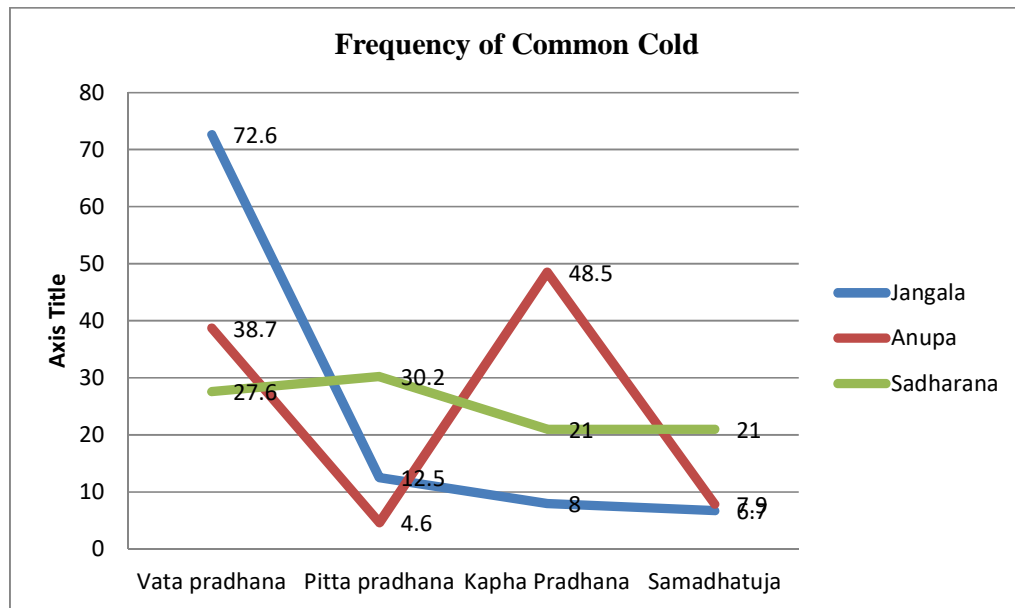
14. Frequency of Renal Calculi

Graph no 4.34: Frequency of Renal Calculi



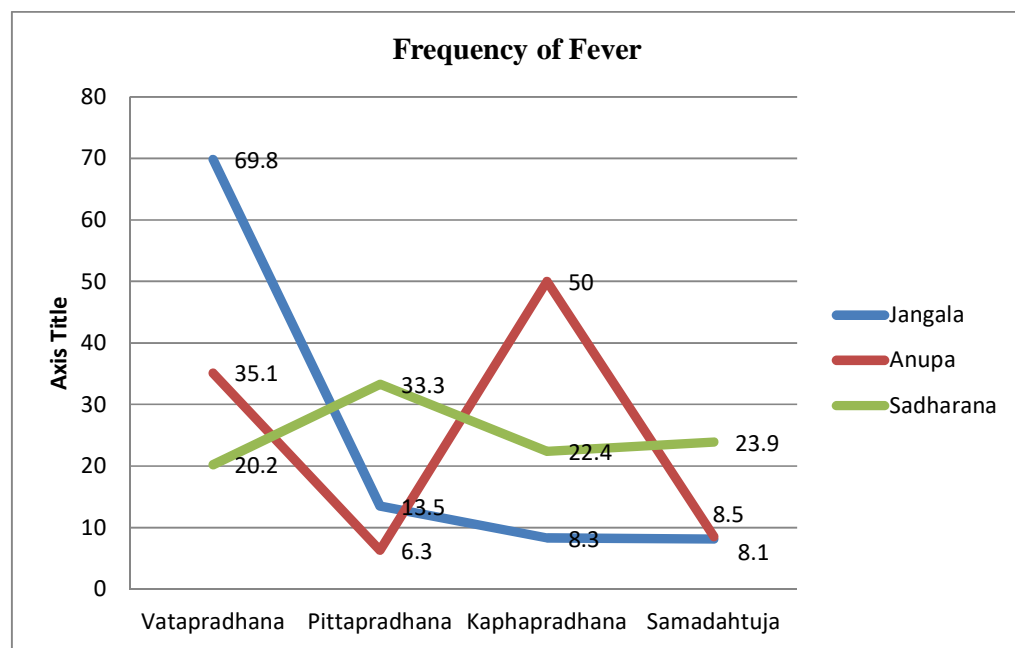
15. Frequency of Common cold per year:

Graph no: 4.35: Frequency of Common Cold per year



16. Frequency of Fever per year:

Graph no: 4.36: Frequency of Fever per year



5.DISCUSSION

The discussion of the present study includes the discussion on

1. Development of Assessment parameters And *Bhumi desha* mapping
2. *Prakriti* questionnaire includes both anthropometric and body parameters.
3. Observation and Results.

1. DISCUSSION ON DEVELOPMENT OF ASSESSMENT PARAMETERS:

The area of the survey was limited to within the Belgaum district. The division of areas depending upon the climatic conditions appears to be more scientific. A pre-designed and semi-structured research data sheet were prepared by considering the maximum specification of particular *Bhumi deshas*. explained in the classics. A total of 30 different geographical regions of predominance having a particular type of *Bhumi deshas*.were visited personally along with the guide and geologists. Final assessment parameters were developed and the Belgaum district was identified into different types of *Bhumi deshas*. as *Janagala* (Arid Land), *Anupa* (Marshy Land) and *Sadarana* (Mixed type of Land) *Desha* mainly based on the type of vegetation.

THE GEOGRAPHICAL STUDY:

In the present study, the selection of each *Bhumi deshas*.was incorporated mainly based on vegetation and longitude, scope, soil type, rock type, water source (well, bore well, lakes and so on.) and level of water accessibility, crops, temperature, wind, mugginess, number and assortment of trees, kinds of leaves, sort of land (plane, uneven, rough and so on.), region of open space, from Mobile Accu-Weather android app with GPS and with a computing device have been recorded at each spot mulling

over 100 square meters area for 100%. The designed *Bhumi deshas*.wise map of Belagavi District showed all the types of *Bhumi deshas*.

TYPE OF VEGETATION:

The maximum vegetation (thick forest) was found in the areas of Nerse, Jamboti, Dongaragav, Londa and Godholi regions of Khanapur taluka. More than 80% of the big trees followed by less than 10% of the thorny plants and shrubs in each were found in these regions. More than 250 big trees (dense forest) was observed Per 100 Sq. Meters. The plantation was big and tall, having big sized leaves and juicy. The thick vegetation because of fertile land, moist weather, and a good amount of water source. Here big and tall plants like mango, ashoka, arjuna, teakwood, many variety creepers and flowers were abundantly found. According to the classics, the *Hintala*, *Tamala*, *Kadaliphala* and a verity of banana plants, *vanjula* and *vanira* plants which are big and tall are seen which were of the same features. These characters plantations were helped in identifying and demarking *Anupa deshas*. of Belgaum district.

The minimum vegetation was found in the regions of Udikeri of Saudatti taluka, Kokatnur of Athani taluka, Inchal & Murgod of Saudatti taluka and Devalapur of Bailhonal taluka. More than 50% and 30% of the thorny plants and shrubs respectively followed by less than 20% big trees were found in these regions. Less than 150 thorny plants (scary) was observed Per 100 Sq. Meters. The available plantations of small-sized, the leaf had cutting-edged, saw shaped, pinnate and bipinnate compound leaf (to withhold loss of water) and much thorny and non-succulent were found. The reduction in the vegetation, small-sized leaf and milky latex plantations is because of less water source, dry weather and intense sun. Here

thorny plants like babul, tamarind, cactus, milky latex shrubs, creepers, etc. were abundantly found. According to the classics the *Kadara, khadira, asana, aswakarna, dhava, tinisha, sallaki, sala, somavalka, badari, tinduka, asvatth, vata amalaki, predominant of sami, kukubha, and simsapa* are seen which were of the same features. These characters plantations were helped in identifying and demarking *Jangala Desha* of Belgaum district as vegetation reflects the source of water.

The moderate vegetation was found in the areas of Hudali, Pantabalekundri, Alarwad, Aste and Khanagav of Belgaum taluka. More than 80% of the big trees were found in these regions. Up to 200 mixed, medium-sized trees was observed Per 100 Sq. Meters. The mixed type of vegetation of both *Jangala* and *Anupa Desha* was seen. These characters plantations were helped in identifying and demarking *Sadaranaa Desha* of Belgaum district.

RAINFALL & WATER SOURCES:

The high rainfall was found in the areas of Nerse, Jamboti, Dongaragav, Londa and Godholi regions of Khanapur taluka. The Dongaragonva had the hilly land. Plenty of water bodies and streams, lakes ponds were found in the areas. The Jamboti had Malaprabha river. According to the *Belgaum district Geological survey report* of 2017, the annual rainfall average was 2468 mm. It had more than 5 water bodies and many rivers and streams with a good amount of water lagging in 100sq met. According to classics also *Prachura Udka & Varshayukta desha*. Because of reduced heat, the level of water in the water bodies are always full and during the summer half of the water is lagging.

The minimum rain fall was found in the regions of Udikeri of Saudatti taluka, Kokatnur of Athani taluka, Inchal & Murgod of Saudatti taluka and Devalapur of Bailhonal taluka. They had much open space, dry land and maidan area. The areas of Kokatnur of Athani taluka, Udikeri & Murgod of Saudatti taluka were had least water body and sources. It is drought in the summertime and all water from well and bore well were dries up. People were depended upon water from water tankers and they use to pay for that. According to the *Belgaum district Geological survey report* of 2017, the annual rainfall average ranged from 464-785mm. The water source was very few (less than 2 water bodies found per 100 sq mets.). The presently available water source was of bore well, deep well and depend upon waterways from rivers. According to classics also *Alpa paniya, & alpa Varshya yukta bhumi*. Because of intense heat, the level of water in the water bodies are very less and deep, during summer they dry up.

The moderate vegetation was found in the areas of Hudali, Pantabalekundri, Alarwad, Aste and Khanagav of Belgaum taluka. The moderate water bodies and sources were found in the areas of Hudali, Pantabalekundri, Alarwad, Aste and Khanagav of Belgaum taluka. According to the *Belgaum district Geological survey report* of 2017, the annual rainfall average was 650mm. 2-3 water bodies were found (open well and bore well) with a moderate amount of water lagging, which is similar to *Sama/ Madhyama udaka* and *Varsha yukta Desha* as explained in classics.

COLOUR OF MUD:

The colour of mud changes from place to place. The red and dark brown colour mud was found in Nerse, Jamboti, Dongaragav, Londa and Godholi regions of Khanapur taluka. The colour of mud is also correlated with classical as *Tamra bhumi*.

Dr Mithya stated that any geographical land is called *Desha and Anupa Desha* had *Tamra Bhumi, Partheeva Bhumi and Jaleeya Bhumi*. (Dr Mithya et al. KAHER-2012).¹⁰⁰

Blackish colour mud was seen in Devalapur of Bailhongal taluk and Inchal of Saudatti taluka. The ash colour and whitish colour mud seen in Kokatnur of Athani taluka and Udikeri of Saudatti taluka along with small stones and gravels were seen. The colour of mud is black, blackish, and ash colour were found in almost all parts of these areas, which is also correlates with classical *dusara bhumi*. Even the quality of mud is also *Ruksha and khara*. The *Akashiya* and *Vayaviya Bhumi* were found in this region. They have sandy, rough ash and greyish black coloured soil and having holes in the soil. Lean and small trees which grow near Rock Mountains. Xerophytes are more seen in this type of soil. (Dr Mithya et al. KAHER-2012).

The red and black colour mud were seen in mainly Belgaum and black colour mud in Pantha balekundi, Hudali, Aste and Alarwad of Belgaum taluka. The mud colour was black and brown found in the *Sadarana Desha*, which is also true as *Nana-varna Bhumi Desha*, explained in classics. Similarly, Dr Mithya et al. stated that any geographical land is called *Desha* and the *Partheeva Bhumi, Akasheeya Bhumi* and *Agneya bhumi* were found in this region (Dr Mithya et al. KAHER-2012).

CROPS:

The major crops were rice and sugarcane, banana, sweet potato was found in Nerse, Jamboti, Dongaragav, Londa and Godholi regions of Khanapur taluka. These crops were similar to classics as *Shalli Dhanya, Ikshu, Kadali* etc, which are abundantly found in this *Desha*. The qualities of these crops are also similar to as of

the *Anupa Desha*. They are guru, snigdha and kaphakara. The principal crops are rice (paddy), sweet potato and pulses were found in Khanapur taluk. (Agro-climatic zones of the district-agronomy 2014-15).⁶³

The crops were jawar purl seed, soya, cotton and which are dry land crops that are commonly seen in Udikeri, Murgod, Inchal, Devalapur and Kokatnur. Many fields were found empty. The chikkodi, hukkeri and Bailhongal richly grew the crops like Jowar, Groundnut, Pulses, Sugarcane and Tobacco. (Amruta rani et al. 2014). These are similar to classics as *Mudga*, *Yava*, *Vrihi dhanya* which are abundantly found in this *Desha*. The qualities of these crops were also similar to as of the *Jangla Desha*. They are *laghu*, *Ruksha* and *vatakara*.

In Belgaum taluka, most of the villages had a good amount of sugar cane, groundnuts, wheat, barley, many a variety of vegetables like cauliflower, cabbage, maize green chillies, sweet corn, tomato, onion, beans and many leafy vegetables found which are similar as explained in classics as *Godhooma* and *Yava* and also mixed vegetation of both *Jangala* and *Anupa Desha*.

Rohit Dangayach et al (2010) mentioned that there is a direct relation between *Desha* and *Ahara*.⁷² Also believe that desha pareeksha is important to assess once disease condition. The *ahara* taken from an individual is directly affected by the *desha* from which it is brought.

ANIMALS AND BIRDS:

The list of animals and birds that were explained in the classics were found to the minimum extent. Most of the local peoples were unaware of the names of birds and animals mentioned in the classics. Parrot, Duck, Dear, Cow, Buffalo, Pig, rabbit,

etc. were commonly observed in the regions of Jamboti, Nerse, Bhimgad, Dongaragonv area. Few animals like Elephants, Bear, and Tigers were are not physically found during our study but the local people said that they were usually found in their fields. According to classics the animals and birds were Shash, Varaha, Mahisha, Khadga, Ruru, Rohi with different variety of Jala-mruga (animals of water like crocodile, duck, etc.) and pradhan mruga (like the elephant, tiger, bear, wild buffalo etc.) were present in *Anupa Desha* and were as similar as above.

The animal's cows, goat, sheep and buffalo and birds like a sparrow, crow, pigeon cock, Robin, Myna etc, were found abundantly in Udikeri, Murgod, Inchal, Devalapur and Kokatnur, According to classics the animals and birds were *Harina, Ena, prasta, gokarnam, khara, chataka, vaanar, gou, manushya. Gavaya, maheesha, Aja* were as similar as above. The animals and birds were of mixed type (*Jangala Desha and Anupa Desha*).

INTENSITY OF THE SUN AND HUMIDITY:

In the regions of Nerse, Jamboti, Dongaragav, Londa and Godholi of Khanapur taluka, the intensity of the sun is less and had much humidity, due to this person used to perspires and had soft skin. According to the *Belgaum district Geological survey report* of 2017, the intensity of the Sun on average 29⁰C and minimum 14⁰C. The relative humidity was 80-90% were found which causes profuse moisture and perspiration in people which intern causes the softness of the skin.

The intense sun and mirage were found more in Kokatnur of Athani taluka, Udikeri of Saudatti taluka and almost all dry land (Inchal, Devalapur, Murgod) and less humidity were found. According to the *Belgaum district Geological survey report*

of 2017, the intensity of the Sun on average 32⁰C and maximum 40⁰C which causes the reduction in the vegetation. The relative humidity was 35-70% thus intense heat and mirage were common.

According to the *Belgaum district Geological survey report* of 2017, the intensity of the Sun is on average 36⁰C and minimum 14⁰C. The humidity was 60-80% which is moderate comparatively other two *Desha* and causes moderate perspiration.

Similarly, B. K. Purandara et al (2019) states that the climate is wet (Subhumid to Humid) in Khanapur Taluka and parts of Belgaum Taluka, Climate is Semi-arid in Other Talukas of Belgaum district. (Hukkeri, Athani, Raibag, Chikkodi, Saundatti and Bailhongal.) It was observed that hydraulic conductivity in the sub-humid zone is significantly higher than in semi-arid zones. Finally, it determines that the Belgaum district had a variety of climatic conditions depend upon its geo-ecological parameters.

WIND:

The soft breeze was found in Nerse, Jamboti, Dongaragav, Londa and Godholi of Khanapur taluka. According to the classics also cold and moist wind is found in this *Desha* because of big and tall trees, water body and low temperatures. The dry, coarse and fast moving wind found in areas of Kokatnur of Athani taluka, Udikeri of saoudatti taluka and Murgod of Saudatti taluka. The hot and dry wind is found in this *Desha*.

LONGITUDE AND LATITUDE:

According to physiography, The *Anupa Desha* lies in between Longitude < 74.47 South & latitude- <15.69 West, which usually lies in Khanapur taluka and hilly zones of Belgaum district.

The *Jangala Desha* lies in between Longitude > 74.52 towards North & latitude >15.80 towards East, which usually lies in the northern dry zone of Belgaum district.

Sadarana Desha lies between Longitude 74.49 to 74.77 North & latitude 15.89 to 16.29 East, which lies maximum in the northern transitional zone of Belgaum district.

AREA OF *BHUMI DESHA* AS PER THE MAPPING:

The whole Belgaum district covers an area of 1475 sq. met of *Anupa Desha*. It had much-closed space because of thick vegetation or forest and covered >250 Plants/100 sq. met. The overall percentage distribution of *Anupa Desha* in the Belgaum district was 21.53%.

The *Jangala Desha* of the whole Belgaum district covers an area of 9090 sq mts of *Janagala Desha*. It had much open space because of less vegetation-covered (<150 Plants/100 sq. met). The overall percentage distribution of *Jangala Desha* in the Belgaum district was 67.22%.

The whole Belgaum district covers an area of 2956.452 sq/mts of *Sadarana Desha* and had moderate vegetation, covered near about 200 Plants/100 sq. met. The overall percentage distribution of *Sadarana Desha* in the Belgaum district was 31.263%.

DEVELOPMENT OF MAP:

- Based on final assessment parameters, taking high-resolution Google earth App around 108 places were identified as *Jangala Desha*, 41 were as *Anupa Desha* and 107 were as *Sadarana Desha*. In this way, a total of 256 different types of *Bhumi deshas*. were identified and included for the present study. The QGIS version 3.18.1 was used for the sampling locations maps and *Desha* wise of these different types of *Bhumi deshas*. and demarked by using different symbols (such as dots, triangles and stars) colours (brown, yellow and light blue) respectively. Finally, *desha* wise map of the Belgaum district was formed. The overall percentage distribution of *Deshas* is *Jangala Desha* 67.22% (9090.82 Sq.mts); *Sadarana Desha* 21.86% (2956.45 Sq.mts) and *Anupa* 10.91% (1475.30 Sq.mts). The *Jangala desha* found to be widely spread in the Belgaum district

2. ASSESSMENT OF PRADHANA PRAKRITI:

15 different geo-geographic regions of the Belgaum district were selected by the Random sampling method (Lottery method) by choosing 5 regions from each *Bhumi deshas*.. The relevant standard Questionnaire proforma was used for the assessment of Prakriti of the subjects and the interrelation between *Bhumi deshas*. and *Prakriti Pradhanata* was assessed on the following assessment parameters which include both anthropometric and body parameters.

DESHA AND PRAKRITI: The maximum number of subjects i.e. 55% of Kaphadikya were found in *Anupa Desha* followed by 31% *Vatadikya*, 9% *Pittadikya* and 5% of *Samadhatuja*. In Jangala Desha maximum subjects 76% of *Vatadikya*, followed by 9% of *Pittadikya* and 9% *Samadhatuja* and 6% of *Kaphadikya* were found. In *Sadarana Desha* maximum number of subjects, 34% of *Vatadikya* and 30% of *Samadhatuja* were found, followed by 23% *Pittadikya* and 13% *Kaphadikya*.

According to the principles of *Ayurveda*, the *Prakriti* is influenced by the particular type of *Desha* which is a specific geographical pattern with specific soil pattern, climate and flora & fauna. Research work carried out by Aggarval *et al.* has shown the relation between the EGLN1 gene polymorphism specific *prakriti* and high altitude adaptation, thus confirming the genomic association of *prakriti* with geographical location⁹³.

Anupa Desha is a coastal or highly humid forestation like geographical pattern. The features are similar to qualities of *Kapha* dosha which is predominant of *Prithwi* and *Apya mahabhut*. In this Desha maximum food is *Kaphavardhak*, So in the present study, most of the people of *Anup Desha* have got *Kapha Pradhan Prakriti*.

And also these characters (*Guna*) were reflected respectively in each variable of *prakriti*.

The *Jangal Desha* is a desert or semi desert-like geographical pattern. The features are similar to the qualities of *Vata dosha* which is predominant of *Vayu and Akasha mahabhut*. In this *Desha* maximum food is similar to the qualities of *Vata vardhaka*. Hence, according to *Loka-Purush Samya Siddhant* in the present study, most of the people of *Jangal Desha* have got *Vata Pradhan Prakriti*. And also these characters (*Guna*) were reflected respectively in each variables of *prakriti*.

Sadarana desha is having a combination of *Jangala* and *Anupa Desha* geographical patterns. In this *Desha* all *Doshas* are equilibrium conditions and hence it is said to be excellent habitat. So in present study most of the people of *Sadarana Desha* have got *Vata Pradhan Prakriti* and *Samadhatuja Prakriti* followed by *Pitta Pradhan Prakriti*. And also these characters (*Guna*) were reflected respectively in each variables of *prakriti* and health status of each person. (*Skin, hair, appetite, health problem, etc.*)

Similarly Rohra Priya (2015) et al, in her study reveals that the *prakriti* of every individual also depends on the geographical pattern. So it is concluded that in *sadharana desha* maximum subjects were found from *pitta pradhan prakriti*. In *jangala desha* maximum subjects were found from *vata pradhana prakriti*, and in *anup desha* maximum subjects were found from *kapha pradhan prakriti*⁵³.

Similarly Harish Rotti (2014) et al. states that each *desha* has one or another element dominating in it, and such *Desha* normally had affection towards respective *Dosha* and intern *Prakriti*.⁷⁴ For example water (*Jalamahabhuta*) is dominating in

wet/marshy land(*Anupa Desha*) naturally affects *Kapha Dosha* and intern shows high results of *Kaphaja Prakriti* in wet land. In his study shows 43.3% of kaphaja prakriti in wet land (*Anupa Desha*) followed by 52.3%vataja Prakriti in dry land (*Jangala desha*) and hence results were confirmed to Ayurvedic concepts.

3. OBSERVATION AND RESULTS:

DEMOGRAPHIC DATA:

AGE: The maximum subjects, i.e., 22.6% were found in the age group above 56, followed by 13.45 and 12.3% in the age group of 26-30 and 36-40 years respectively. The minimum subjects, i.e., 8% from the 51-55 age groups.

SEX: The maximum number of subjects i.e. 58% were of females followed by 42% of males.

EDUCATION: The maximum number of subjects i.e. 39% were found educated up to the Secondary level followed by 34% up to the Primary level. The minimum number of subjects i.e. 1% were found post-graduated followed by 7% up to Degree level.

OCCUPATION: The maximum number of subjects i.e. 41% were housewives followed by 31% of agricultures and 7% of the business.

ANTHROPOMETRIC DATA:

BMI AND DESHA: The maximum number of subjects i.e. 79% of *Jangala Desha* followed by 64.3% of *Sadarana Desha* have found Normal BMI. 28% and 10.2% of the subject of *Anupa Desha* have been found overweight and Obese respectively. Because of *snigdha* (moist) and *sheetha* (cold) weather people living in *Anupa Desha* found more oily, glossy, and clear skin and these qualities reflect in all parts of the body and thus well and fatty body built seen. It was found that there is a significant association between 'BMI' and '*Prakriti*'. Similarly, the research work carried out by Harish Rotti et, al, has shown, that there is the association between BMI and

prakriti⁹⁷. Results reveal that individual with *kapha prakriti* shows higher BMI as opposed to *vata prakriti*.

BODY DATA:

DESHA AND SKIN QUALITY: The maximum subjects with Normal skin (i.e. 47%) were found in *Sahdarana Desha*, *Rukshna skin* (67.1%) in *Jangala Desha*, and *Snigdha skin* (55.6%) in *Anupa Desha*. The *ruksha*, *khara* and *sheeta* qualities of *vata dosha* are reflected in *Jangala Desha* which results in *rukshata* of skin and *snigdha* quality (*pruthvi + App mahabhuta*) of *anupa desha* causes *snigdha* skin respectively.

DESHA AND CRACKED SOLE: The maximum number of subjects of *Jangala Desha* (44.7%) were having Cracked Sole followed by 68.1% of the subjects of *Anupa Desha* were Normal Sole.

DESHA AND PALM CRACKS: The maximum number of subjects of *Jangala Desha* (33.9%) were having Palm cracks followed by 73.5% of the subjects of *Sadarana Desha* were having Normal Palm.

DESHA AND SKIN REACTIVENESS: The maximum number of subjects of *Jangala Desha* (21.3%) were having Skin Reactiveness followed by 83.1% of the subjects of *Sadarana Desha* were having Normal Skin Reactiveness. The qualities of *Jangala desha* (*ruksha*, *khara* and *sheeta gunas*) causes scaly and dry skin.

DESHA AND PROMINENT VEINS & TENDONS: The maximum number of subjects of *Anupa Desha* (32.8%) were having prominent veins and tendons followed by 83.1% of the subjects of *Sadarana Desha* were having Normal veins and tendons.

DESHA AND FRECKLES AND MOLES: The maximum number of subjects of *Jangala Desha* (75.1%) were having Normal Freckles and Moles. The maximum number of subjects of *Sadarana Desha* (27.2%) and (7%) were having < 5 and > 5 Freckles and Moles respectively. More number of freckles and moles were found in *sadarana desha* (23% *pitta pradhana prakriti*). The *ushna* , *tikshna* and *drava* qualities of *pitta* cause vitiation of *raktha dhatu* intern and cause pimples and freckles. Similarly, Piyathilaka AKGP et, al (October 2016), stated that pimples were formed due to vitiation of *vata dosha*, *pitta dosha* and *rakta dhatu* and found more in *pitta pradhana prakriti*. In this study people belonging to *pitta pradhana prakriti* and had more freckles and pimples were more found in *Sadarana desha*.

DESHA AND JOINT: The maximum subjects 50% of Sound from joints while walking were found in *Jangala Desha*. The *ruksha*, *khara* and *sheeta* qualities of *vata dosha* are reflected in *jangala desha* which results in *rukshata* of joint and produces sound during walking.

DESHA AND HAIR:

Assessment of Hair quality: The maximum subjects 72% of *Rukshata* of hair were found in *Jangala Desha*. The maximum subjects 56% of *Snigdhatta* of hair were found in *Anupa Desha*. The maximum subjects 26% Normal hair were found in *Sadarana Desha*. In *jangala desha* the *ruksha*, *khara* and *laghu* qualities of *vata dosha* causes dry hair and *snigdha*, *sleekshna*, *mrudu* qualities of *kapha dosha* in *anupa desha* causes smooth and shiny hair.

Assessment of Hair colour: The maximum subjects 46% of Grey colour hair were found in *Jangala Desha*. The maximum subjects 57% of Black colour hair were found

in *Anupa Desha*. The maximum subjects 2% of Black and shiny hair were found in *Anupa Desha*. The maximum subjects 27% of White and Coppery colour hair were found in *Jangala* and *Sadarana Desha* respectively. The *ruksha, khara* qualities of *vata dosha* present in *Jangala desha* causes undernourishment of skin and hair and results in thin, brittle and grey hair and *snigdha, slekshna, mrudu* qualities of *kapha dosha* in *anupa desha* causes black, smooth and shining hair.

Assessment of Hair distribution: Maximum subjects 60% of thick hair were found in *Anupa Desha*. Maximum subjects 62% of thin hair were found in *Sadarana Desha*. Maximum subjects 9% of scanty hair were found in *Jangala Desha*.

Assessment of Hair Loss: Mean age of baldness was found a maximum of 41 years in *Sadarana Desha* as this Desha is a predominance of *Pitta Dosha* (*ushna* and *tikshna* qualities) and is responsible for early baldness. Maximum subjects 16% of baldness were found in *Jangala Desha*. As *ruksha, khara* and *laghu* qualities of *Jangala desha* intern reflects in *vataja* and *pittaja prakriti* persons which causes dryness, brittleness and falling of hair were seen. Similarly, Dr. Princy Purwar et al, states that When *pitta* combines with *vata* or *kapha dosha* to destroy the hair, it is called as *khalitya*. Also, states due to *usna guna* of *pitta dosha* individual of *pitta prakriti* start hair fall and greying of hair earlier than individuals of other *dosha prakriti*. Hence in the present study in *jangala desha* and *sadarana desha* baldness was found.

DESHA AND AGNI: Desha provides proper guidelines to implement food and behavior of *agni* to suits one's *prakriti*.¹⁰² The maximum subjects 49% of *Vishamagni* were found in *Jangala Desha* (*Vata pradhana prakriti*). Maximum subjects 27% of *Mandagni* were found in *Anupa Desha* (*kapha pradhana prakriti*) and

Jangala Desha. Maximum subjects 58% of *Samagni* were found in *Anupa Desha*. Maximum subjects 17% of *Tikshnagni* were found in *Sadarana Desha* (*pitta pradhna prakriti*). Similarly Namrata B. et al, in their study ‘correlation of *Agni* with *Koshtha*, *Prakruti*, and *Mala*’ have shown the correlation between *agni* and *prakriti*. From this study of 60 participants, it can be concluded that the maximum number of *Vishamagni* participants were having *Vata*-dominant *Prakruti* ; *Mandagni* participants were having *Kapha*-dominant *Prakruti*, *Tikshanagni* participants were having *Pitta*-dominant *Prakruti*, and *Samagni* participants were very rare, having *Pitta*-dominant *Prakruti*.

DESHA AND SWEDA/SWEAT: The maximum subjects 38% of Low sweating were found in *Jangala Desha*. Maximum subjects 29% of Excess sweating were found in *Anupa Desha*. Whereas maximum subjects 34% of body odour were found in *Jangala Desha*. As *ruksha*, *khara* and *sheeta* qualities of *vata* causes less sweating in *jangala desha*. In *anupa desha* because of more humidity people sweat more in this region.

DESHA AND SLEEP PATTERN: The maximum subjects 50% of *Jagaruka/Alert* full Sleep were found in *Jangala Desha*. Maximum subjects 62% of Deep Sleep were found in *Anupa Desha*. Maximum subjects 54% of Normal sleep patterns were found in *Sadarana Desha*. As *ruksha*, *khara* and *laghu* qualities of *Jangala desha* intern reflects in *vataja prakriti* persons which causes alertness in the sleep. In *anupa desha* *snigdha*, *sheeta* and *guru* quality causes good and deep sleep.

Similarly Shirley Telles et al, (May 2015) states that the *DOSHAS* can influence the quality and quantity of sleep. The study suggests that *vata prakriti* and *dosha* of

persons were associated with a longer time to fall asleep and Higher KAPHA scores, in contrast, are associated with longer daytime naps.

DESHA AND TOLERANCE OF PERSON: The maximum subjects 48% of Hot tolerance were found in *Jangala Desha*. Maximum subjects 29% of Cold Tolerance were found in *Sadarana Desha*. Maximum subjects 41% of Normal tolerance were found in *Sadarana Desha*. In the present study as *ruksha*, *khara* and *sheeta* qualities of *Jangala desha* intern reflects in *vataja prakriti* persons which causes intolerance to cold. In *sadarana desha* normal tolerance was found because of the equilibrium state of each dosha quality.

DESHA AND OVERALL ACTIVITY OF PERSON: The maximum subjects 61% of Fast activity were found in *Jangala Desha*. Maximum subjects 44% of Slow activity were found in *Anupa Desha*. Maximum subjects 45% of Normal activity were found in *Sadarna Desha*. As *ruksha*, *khara* and *chala* qualities of *Jangala desha* intern reflect in persons which causes fast activities without proper coordination in them. In *anupa desha snigdha*, *sheeta* and *manda* quality causes slow and steadyness in all the activities of persons.

DESHA AND APPEARANCE OF SUBJECTS: The maximum subjects 38% of Irritative appearance were found in *Jangala Desha*. Maximum subjects 21% of Pleasing appearance were found in *Anupa Desha*. In comfort appearance maximum subjects 67% were found in *Anupa Desha*. As dryness and roughness qualities of *Jangala desha* intern reflect in *prakriti* of persons which causes emaciation of body (anaemic/undernourished) and thus causes irritative appearance. In *anupa desha snigdha* and *sheeta* quality causes calmness and is reflected in respective persons as pleasing and comfortable appearance.

DESHA AND RECURRENT HEALTH PROBLEMS: The maximum subjects 27% of *Anupa Desha* were found of recurrent health problems usually, followed by 19% in *Jangala Desha* and only 14% were found in *Sadarana Desha*. A maximum of 49.1% of diseases was reported in *Jangala Desha* followed by 25.3% in *Anupa Desha*. The maximum subjects 64.1% of Hypertension were found in *Jangala Desha* followed by 46.4% in *Anupa Desha* and 39.6% in *Sadarana Desha*. The maximum subjects 84.4% of Diabetes were found in *Jangala Desha* followed by 50% in *Anupa Desha* and 46.1% in *Sadarana Desha*. The maximum subjects 94.1% of Joint pain found in *Janagala Desha* followed by 48.1% in *Anupa Desha* and 39.4% in *Sadarana Desha*. The maximum subjects 63.1% of Headache found in *Janagala Desha* followed by 45% in *Anupa Desha* and 44.1% in *Sadarana Desha*. The maximum subjects 65% of Acidity found in *Janagala Desha* followed by 42.3% in *Anupa Desha* and 42.8% in *Sadarana Desha*. The maximum subjects 73.3% of Backpain found in *Janagala Desha* followed by 59.4% in *Anupa Desha* and 43.7% in *Sadarana Desha*. The maximum subjects 99% of Renal calculi found in *Janagala Desha* followed by 57% in *Anupa Desha*. There are no reasons for renal calculi found in *Sadarana Desha*

In the Ayurvedic texts, it is indicated that the whole universe is made up of five classical elements¹⁰³ (air, earth, ether, fire, and water) and they unite in different the proportions to form the entire world including humans. Each *desha* will have one or the other element dominating in it, and as such, each *desha* had a corresponding *dosha* and consequently, to the corresponding *prakriti* respectively. For example, water (*Jala Mahabhuta*) is dominant in marshy lands (*anupa desha*) and *kapha dosha* respectively; stating that all wet lands will show a high incidence of *kapha prakriti* and *kaphaja vyadhis* respectively. The above similarity is also evident in our present study wherein the *anupa desha* shows a higher prevalence of individuals with *kapha*

prakriti and kaphaja vyadhis (cough, obesity, etc). while in the dry regions, *vata prakriti* was more dominant *and vataja vyadhis(dry skin, cracked palm, dry cough, renal calculi, etc).* Hence, our results in general were, conform to the *ayurvedic* texts.

The prevalence of the diseases depended upon the environment we live in; these were similar to that Harita Chandana et al, (2014) states that *Bhumi desha* has a major role in the examination of disease as well as diseased person, *desha* has to be analyzed thoroughly to determine the *nidanas* and decide the *chikitsa*, which is opposite to the qualities of *desha*. Even Dr. Deep V.C (Tiruvantapuram University of Kerala -1997) also had a similar opinion as our body is close interconnected with the environment, treatment approach and prognosis are greatly influenced by the external environment. Some particular diseases are seen in particular places/*desha*, and some are in particular *ritu & kala*. The author concludes with “*Jangala desha* best among three *deshas*”.

4. STATISTICAL ANALYSIS REPORT:

Total 4767 individuals (subjects) were assessed for *pradhana prakriti* according to *desha* classification. For checking the association between qualitative aspects of *prakruti* and *Desha*, 'Pearson the chi-square test of independence is used. Whereas, for the quantitative parameter, a one-way ANOVA test is used to check whether mean value of parameters differs significantly over different *deshas*. If found significant, the differences are further investigated using Bonferroni corrected t tests as post-hoc analysis. All the findings are supported by appropriate summary statistics and graphs. The level of significance for the study is 5%.

In the present study, there were, 1039 respondents (22%) of *Anupa desha*, 2277 respondents (48%) with *Jangala desha*, while 1451 respondents (30%) with *Sadharan desha* were assessed for their *pradhana prakriti*.

The distribution of *prakriti* subjects was, 34 respondents (1%) were with *kaphajaprakruti*, 373 respondents (8%) were found with *kaphapittaprakruti*, for 485 respondents (10%) *prakruti* was assessed to be *kaphavata*, 7 respondents were of *pittaja prakruti*, 191 respondents (4%) were of *pittakaphaprakruti*, 449 respondents (9%) were of *pittavataprakruti*, 690 respondents (14%) were of *samadhatujaprakruti*, 101 respondents (2%) were of *vatajaprakruti*, 782 respondents (16%) were having *vatakaphaprakruti* while 1655 respondents (35%) were found with *vatapittaprakruti*.

Using the the chi-square test of independence, it was found that there is a significant association between '*Desha*' and '*Prakruti*' (P-value < 0.001) at a 5% level of significance. Further investigation using pairwise the chi-square tests with Bonferroni correction as post-hoc analysis reveals that the distribution of *prakruti* is

significantly different between '*Jangaladesha*' and '*Sadharandesha*' (The chi-square statistic = 843.7, P-value < 0.001), '*Anup desha*' and '*Sadharandesha*' (The chi-square statistic = 631.94, P-value < 0.001) as well as '*Anup desha*' and '*Jangaladesha*' (The chi-square statistic = 994.02, P-value < 0.001) at 5% level of significance.

The difference in the distribution of *prakruti* across different *deshas* can be explained as follows. In *Anupadesha*, respondents with *Kaphadhikya* were relative larger in the proportion (prop = 0.548) with 95% confidence interval of the proportion to be [0.517, 0.578].

For *Jangaladesha*, the the proportion of respondents with *vatadhikya* (prop = 0.795) was relatively higher with 95% confidence interval of the proportion to be [0.778, 0.812].

In the case of *Sadharan desha*, both *vatadhikya* and *samadhatuja* patients were found in relatively high the proportions i.e. 0.337 and 0.304, respectively. The 95% confidence interval for the the proportion of *vatadhikya* patient was [0.313, 0.361] while that for the the proportion of *samadhatuja* patient was [0.280, 0.328].

Outcomes on various aspects of the present study are grouped under the following themes.

1. *Desha* and skin:

Desha and skin were found to be associated as per the the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *jangala desha*, the the proportion of respondents with *Rukshna* skin (prop=0.671) was higher as compared to the the proportion of 0.259 for *anupa desha* while the the proportion

of 0.323 of for *sadharan desha*. In *Sadharan desha*, the the proportion of respondents with normal skin was significantly higher (prop = 0.470).

Here the respective *desha* qualities (viz; *ruksha*, *khara* etc quality of *jangala desha* and *snigdha*, *slakshna*, etc quality os *anupa desha*.) were reflected in the skin quality of subjects

2. *Desha* and softness skin:

Desha and skin softness were found to be associated as per the the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *jangala desha*, the the proportion of respondents with soft skin (prop=0.252) was lower as compared to the proportion of 0.530 for *anupa desha* while the proportion of 0.442 of for *sadharan desha*.

3. *Desha* and cracked sole:

Desha and cracked sole were found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. The proportion of cracked soles was higher in *Jangala desha* (prop= 0.448) as compared to other *deshas*. Here the respective *deha* qualities viz; *ruksha*, *khara* etc quality of *jangala desha* were reflected in the skin quality of subjects.

4. *Desha* and cracked palm:

Desha and palm cracks were found to be associated as per the chi-square test of independence (P-value < 0.001) at a 5% level of significance. In *jangala desha*, the proportion of respondents with palm cracks (prop=0.339) was higher as

compared to the proportion of 0.0.289 for *anupa desha* while the proportion of 0.261 for *sadharan desha*.

Here the respective desha qualities viz; *ruksha, khara* etc quality of *jangala desha* were reflected in the skin quality of subjects

5. Desha and skin reactiveness:

Desha and skin reactive were found to be associated as per the chi-square test of independence (P-value = 0.002) at 5% level of significance. In *sadharan desha*, the proportion of respondents with skin reactive (prop=0.169) was lower as compared to the proportion of 0.211 for *anupa desha* while the proportion of 0.214 of for *jangala desha*.

Here the *tikshna ushna, ruksha, khara* etc qualities and *vata-pitta dosha pradhanata* of *jangala desha* were reflected in the skin quality of subjects

6. Desha and prominent vein and tendon:

Desha and prominent vein and tendons were found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *anupa desha*, the the proportion of respondents with prominent veins and tendons (prop=0.007) was lower as compared to the proportion of 0.214 for *jangala desha* while the proportion of 0.169 for *sadharan desha*.

Here the *tikshna ushna, ruksha, khara* etc qualities and *vata-pitta dosha pradhanata* of *jangala desha* were reflected in the quality of subjects.

7. Desha and freckles and moles:

Desha and the number of freckles/black moles were found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance.

In *sandharan desha*, the proportion of respondents with greater than 5 freckles/black moles (prop=0.071) was higher as compared to the proportion of 0.038 for *jangala desha* while the proportion of 0.013 of for *anupa desha*.

In *Sadharan desha*, the the proportion of respondents with normal skin was significantly higher (prop = 0.470).

8. Desha and sound from joint while walking:

Desha and sound from joints while walking were found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *jangala desha*, the proportion of respondents with sound from joints while walking (prop=0.504) was higher as compared to the proportion of 0.246 for *anupa desha* while the proportion of 0.245 of for *sadharan desha*.

9. Desha and unusual movements from joints:

Desha and unusual movement of body parts were not associated as per the chi-square test of independence (P-value = 0.065) at 5% level of significance.

10. Desha and quality of hair:

Desha and Hair were found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *jangala desha*, the the proportion of respondents with *Ruksha* hair (prop=0.720) was higher as compared to the proportion of 0.227 for *anupa desha* while the proportion of 0.351 for *sadharan desha*.

11. Desha and hair colour:

Desha and hair colour was found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *jangala desha*, the the proportion of respondents with gray hairs (prop=0.459) was higher as compared to the proportion of 0.208 for *anupa desha* while the proportion of 0.161 for *sadharan desha*.

12. Desha and hair distribution:

Desha and hair distribution were found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *anupa desha*, the proportion of respondents with thin hairs (prop=0.350) was lower as compared to the proportion of 0.581 for *jangala desha* while the proportion of 0.622 for *sadharan desha*.

13. Desha and baldness:

Desha and baldness were found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. The proportion of baldness was higher in *Jangala desha* (prop= 0.108) as compared to other *deshas*.

14. Desha and agni:

Desha and *agni* were found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *Jangala desha*, the proportion of respondents with *Vishamagni* (prop=0.941) was higher as compared to the proportion of 0.092 for *anupa desha* while the proportion of 0.174 of for *sadharan desha*.

15. Desha and sweda:

Desha and *Sweda* type were found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *jangala desha*, the

proportion of respondents with low *sweda* (prop=0.378) was higher as compared to the proportion of 0.147 for *anupa desha* while the proportion of 0.141 for *sadharan desha*.

16. Desha and sweat odor:

Desha and body odor was found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *anupa desha*, the proportion of respondents with odor (prop=0.204) was lower as compared to the proportion of 0.339 for *jangala desha* while the proportion of 0.280 of for *sadharan desha*.

17. Desha and type of sleep:

Desha and sleep type were found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *jangala desha*, the proportion of respondents with alert sleep (prop=0.506) was higher as compared to the proportion of 0.279 for *anupa desha* while the proportion of 0.239 for *sadharan desha*.

18. Desha and Tolerance:

Desha and tolerance were associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *jangala desha*, the the proportion of respondents with tolerance to hot (prop=0.474) was higher as compared to the proportion of 0.386 for *anupa desha* while the proportion of 0.299 of for *sadharan desha*.

19. Desha and overall activity:

Desha and activity of subject were found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *jangala desha*, the the proportion of respondents with fast activity (prop=0.611) was

higher as compared to the proportion of 0.164 for *anupa desha* while the proportion of 0.319 for *sadharan desha*.

20. Desha and Appearance:

Desha and appearance were found to be associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *jangala desha*, the proportion of respondents with irritating appearance (prop=0.379) was higher as compared to the proportion of 0.115 for *anupa desha* while the proportion of 0.169 of for *sadharan desha*.

21. Desha and Recurrent health problem:

Desha and recurrent health problems were associated as per the chi-square test of independence (P-value < 0.001) at 5% level of significance. In *anupa desha*, the proportion of respondents with recurrent health problems (prop=0.273) was higher as compared to the proportion of 0.189 for *jangala desha* while the proportion of 0.135 for *sadharan desha*.

22. Desha and age of baldness attainment:

The mean age of baldness attainment for three *deshas* was significantly different (P-value < 0.001) as observed by the one-way ANOVA test at 5% level of significance. The mean age of baldness attainment for *anupa desha* was 52.56 with S.D. of 5.38. That for *Jangala desha* is 46.59 with S.D. of 11.40 while the mean age of baldness attainment for *Sadharan desha* is 41.46 with S.D. of 11.33.

Using Bonferroni corrected pairwise independent t-test as post hoc analysis, it was found that The mean age of baldness attainment for *Sadharan desh* is significantly lower than that for *Anupa desha* (P-value < 0.001) as well as *Jangala desha* (P-value < 0.001). Further, the mean age of baldness attainment for *Jangala desha* is significantly lower than that for *Anupa desha* (P-value < 0.001).

23. Desha and Morbidity:

- The mean morbidity for three *deshas* was significantly different (P-value < 0.001) as observed by the one-way ANOVA test at 5% level of significance. The mean morbidity for *anupa desha* was 0.65 with S.D. of 0.75. That for *Jangala desha* is 0.36 with S.D. of 0.63 while the mean morbidity for *Sadharan desha* is 0.42 with S.D. of 0.73.
- Using Bonferroni corrected pairwise independent t-test as post hoc analysis, it was found that, The mean morbidity for *Jangala desha* is significantly lower than that for *Anupa desha* (P-value < 0.001) as well as *Sadharan desha* (P-value < 0.001). Further, the mean morbidity for *Sadharan desha* is significantly lower than that for *Anupa desha* (P-value < 0.001).
- The maximum 49.1% of diseases were reported in *Jangala desha* followed by 25.3% in *Anupa desha*.
- The maximum subjects 64.1% of Hypertension were found in *Jangala desha* followed by 46.4% in *anupa desha* and 39.6% in *sadarana desha*.
- The maximum subjects 84.4% of Diabetes were found in *Jangala desha* followed by 50% in *anupa desha* and 46.1% in *sadaranadesha*.
- The maximum subjects 94.1% of Joint pain found in *Janagala desha* followed by 48.1% in *Anupa desha* and 39.4% in *Sadarana desha*.
- The maximum subjects 63.1% of Headache found in *Janagala desha* followed by 45% in *Anupa desha* and 44.1% in *Sadarana desha*.
- The maximum subjects 65% of Acidity found in *Janagala desha* followed by 42.3% in *anupa desha* and 42.8% in *sadarana desha*.
- The maximum subjects 73.3% of Backpain found in *Janagala desha* followed by 59.4% in *anupa desha* and 43.7% in *sadarana desha*.

- The maximum subjects 77.7% of found in *Janagala desha* followed by 58.4% in *anupa desha* and 37.5% in *sadarana desha*.
- The maximum subjects 99% of Renal calculi found in *Janagala desha* followed by 57% in *anupa desha*. There are no cases of renal calculi found in *sadarana desha*.
- In hyper tension the subjects of *vatapradhana prakriti* of *jangala desha*, *kapha pradhana prakriti* of *anupa desha* and *vatapradhana prakriti* of *sadarana desha* were found.
- In diabetes mellitus the subjects of *vatapradhana prakriti* of *jangala desha*, *kapha pradhana prakriti* of *anupa desha* and *vatapradhana prakriti* of *sadarana desha* were found.
- In joint pain the subjects of *vatapradhana prakriti* of *jangala desha*, *vata pradhana prakriti* of *anupa desha* and *vatapradhana prakriti* of *sadarana desha* were found.
- In headache the subjects of *vatapradhana prakriti* of *jangala desha*, *kapha pradhana prakriti* of *anupa desha* and *vatapradhana prakriti* of *sadarana desha* were found.
- In Acidity the subjects of *vatapradhana prakriti* of *jangala desha*, *kapha* and *vata pradhana prakriti* of *anupa desha* and *pitta pradhana prakriti* of *sadarana desha* were found.
- In Backpain the subjects of *vatapradhana prakriti* of *jangala desha*, *kapha pradhana prakriti* of *anupa desha* and *pitta pradhana prakriti* of *sadarana desha* were found.
- In Renal calculi, the subjects of *vatapradhana prakriti* of *jangala desha* and *kapha pradhana prakriti* of *anupa desha* were found.

24. Desha and frequency of Common cold:

The mean frequency of common cold per year for three *deshas* were significantly different (P-value < 0.001) as observed by one-way ANOVA test at 5% level of significance. The mean frequency of common cold per year for *Anupa desha* was 0.36 with S.D. of 0.88. That for *Jangala desha* is 0.55 with S.D. of 1.10 while the mean frequency of common cold per year for *Sadharan desha* is 0.14 with S.D. of 0.58.

Using Bonferroni corrected pairwise independent t-test as post hoc analysis, it was found that, The mean frequency of common cold per year for *Sadharan desha* is significantly lower than that for *Anupa desha* (P-value < 0.001) as well as *Jangala desha* (P-value < 0.001). Further, the mean frequency of common cold per year for *Jangala desha* is significantly higher than that for *Anupa desha* (P-value < 0.001).

25. Desha and frequency of fever:

The mean frequency of fever per year for three *deshas* was significantly different (P-value < 0.001) as observed by the one-way ANOVA test at 5% level of significance. The mean frequency of fever per year for *Anupa Desha* was 0.39 with S.D. of 0.99. That for *Jangala desha* is 0.49 with S.D. of 1.00 while the mean frequency of fever per year for *Sadharan desha* is 0.11 with S.D. of 0.38.

Using Bonferroni corrected pairwise independent t-test as post hoc analysis, it was found that, The mean frequency of fever per year for *Sadharan desha* is significantly lower than that for *Anupa desha* (P-value < 0.001) as well as *Jangala desha* (P-value < 0.001). Further, the mean frequency of fever per year for *Anupa desha* is significantly lower than that for *Jangala desha* (P-value = 0.005).

26. Desha and BMI:

It is found in the present study that maximum number of subjects i.e. 60% was reported from normal BMI class followed by 25% from over weight BMI class were found.

In the present study maximum subjects 50.7% of *Jangala Desha* were belongs to less than 17.5 BMI ratio followed by 26.8% from *Anupa desha* and 22.5% from *sadarana desha*.

Maximum subjects 54.8% of *Jangala desha* were belongs to 17.5 -24.9 BMI ratio, followed by 16.7% from *sadarana desha* and 28.5% from *anupa desha*.

In between 24.9-29.9 BMI ration maximum subjects 30% from *anupa desha* followed by 32.7% from *sadarana desha* and 37.3% from *jangala desha*.

In more than 29.9 BMI ratio maximum subjects 13.8% were from *anupa desha* followed by 42.9% *sadarana desha* and 43.3% from *jangala desha* were found percentage within the *desha*. It was found that there is a significant association between 'BMI' and '*Prakruti*'.

6. SUMMARY

1. *Desha* is one of the fundamental principles of *Ayurveda*, which refers to the geo- ecological place / Habitat¹.
2. *Bhumi Desha* (Habitat/Geographical area) is classified into three types according to its particular features and ecological status as - *Jangala Desha* (dry land), *Anupa* (wet land), and *Sadarana* (intermediate land)
3. *Bhumi desha* influences the formation of *Prakriti* (body constitution) during conception with predominant dosha. It also influences the physiological condition (*Prakriti*) and Pathological condition (*Vikruti*) of people living in that area.
4. *Prakriti* is classified into seven types according to the involvement of dosha and their particular guna (qualities).
 - *Ekadoshaja prakriti* (*Vata Prakriti* , *Pitta Prakriti* & *Kapha Prakriti*);
 - *Dvandwaja Prakriti* (*Vata-pittaja*, *Pitta-kaphaja*, *Vata-kaphaja*) and
 - *Samadhatuja Prakriti* (all dosha in equilibrium state).
5. The Belgaum district has an area of 13,415 square kilometres. The district lies between 15°00” & 17°00” north latitudes and between 74°00 &75°30” east longitudes.
6. **Methodology:**
 - A pre-designed and semi-structured research data sheet was prepared that consisted of classically explained geo-ecological parameters of different types of *Bhumi Desha*.

- Based on classical parameters of the ideal *Bhumi Desha* as *Jangala Desha* (arid land), *Anupa Desha* (marshy land), and *Sadarana Desha* (intermediate land) were identified by taking up field visit (Map no-1).
- Geo-ecological parameters like latitude-longitude, temperature, humidity, wind, vegetation, crop soil, rock type, etc., of that particular *Bhumi Desha* were collected, recorded, and analyzed to develop the systematic assessment parameters.
- Later the mapping of such geo-geographic regions into different types of *Bhumi Desha* was prepared using Google earth, a map was prepared.
- After mapping from each *Desha* five typical habitats were selected randomly by lottery method.
- After selection of each *desha* were surveyed by systematic sampling methods for research subjects with face to face interview and predominant of *Prakriti* had assessed.

7. Observations and Results:

- The Geo-ecological parameters distinguished for a specific *Bhumi Desha* arranged for the most part on vegetation types, etc. have been recorded at each spot mulling over 100 square meters. The location and *Bhumi Desha* wise maps were designed for Belgaum district. The overall percentage distribution of *Deshas* is *Jangala Desha* 67.22% (9090.82 Sq.mts); *Sadarana Desha* 21.86% (2956.45 Sq.mts) and *Anupa* 10.91% (1475.30 Sq.mts).
- In the present study, 1039 (21.8%) respondents of *Anupa Desha*, 2277 (47.8%) of *Jangala Desha*, and 1451 (30.4%) of *Sadarana Desha* were assessed for *Pradhana Prakriti* from the different geo-geographic regions of the Belgaum district. The maximum number of subjects i.e. 55% of

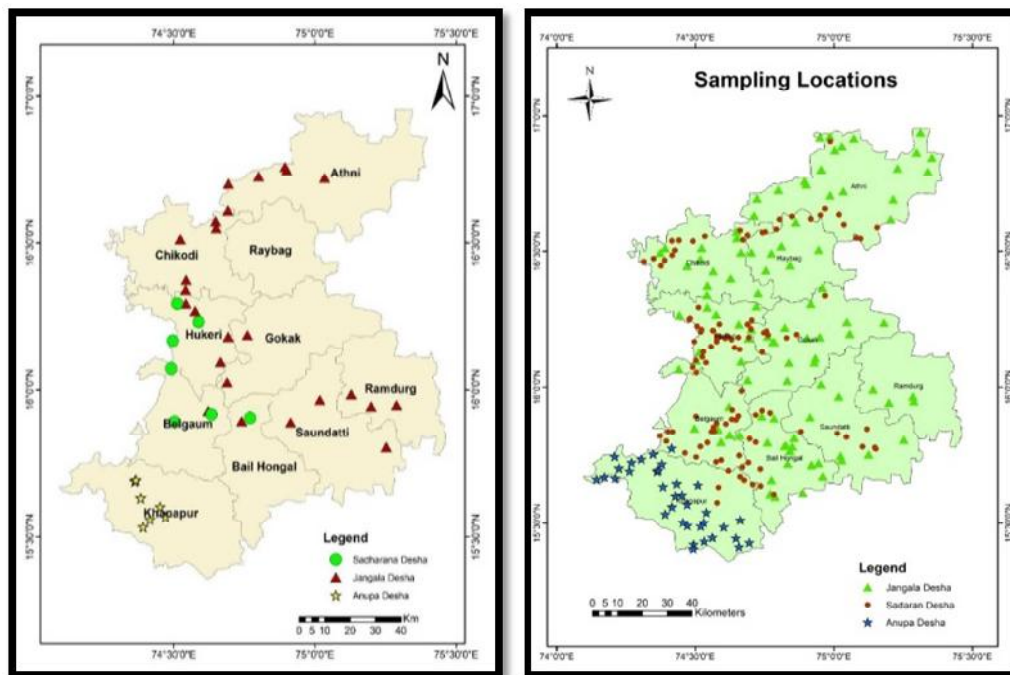
Kaphadikya were found in *Anupa Desha*. 76% of *Vatadikya* in *Jangala Desha*. 34% of *Vatadikya* and 30% of *Samadhātuja* were found in *Sadarana Desha*.

7.CONCLUSION

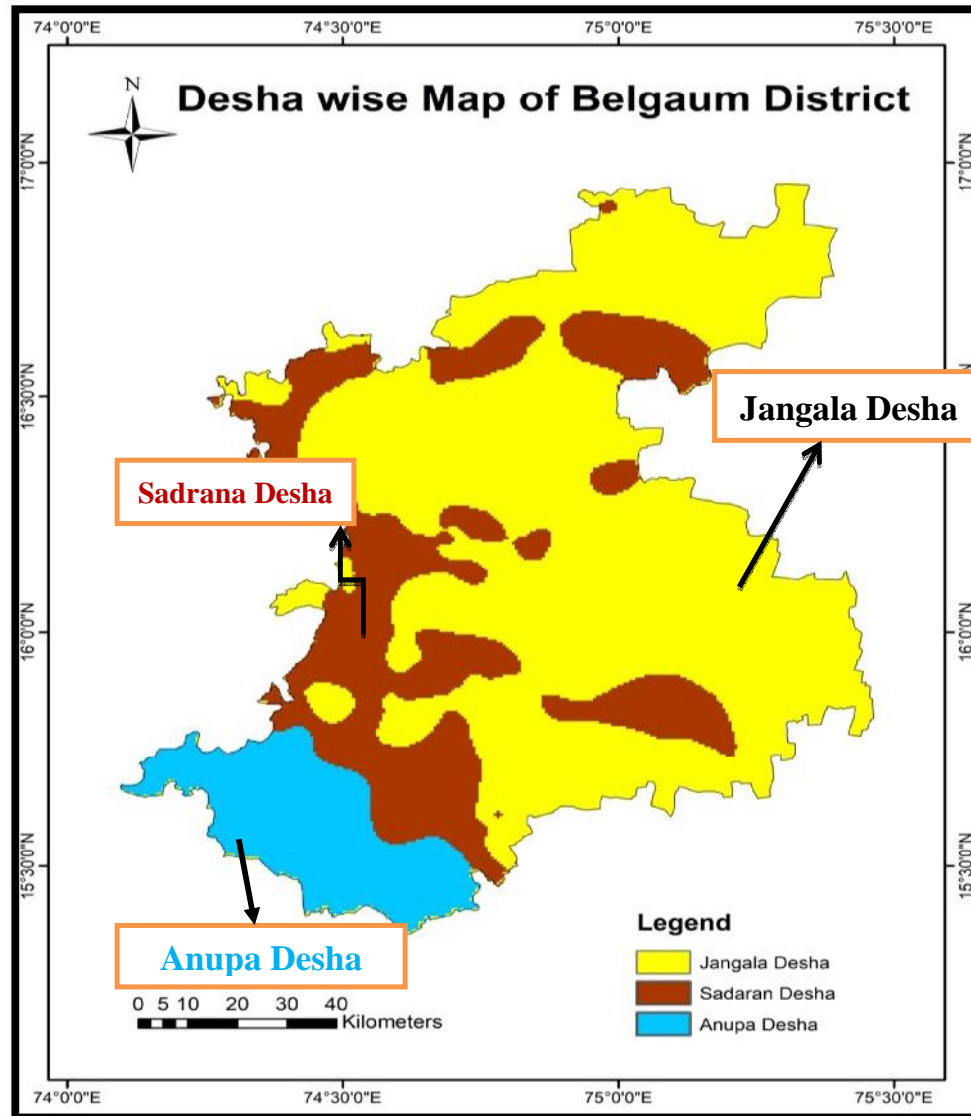
1. Considering the maximum specification of particular *Bhumi Desha* explained in the classics and based on the type of vegetation the Geo-ecological parameters were developed for designing *Bhumi Desha* wise map of Belgaum district.

SN	ASSESSMENT PARAMETERS	JANGALA	ANUPA	SADARANA
Characters Per 100 sq. meters				
A.	VEGETATIONS			
	1. Thorny plants	>50%	< 10%	10 to 50%
	2. Big trees	<20%	>80%	20 to 80%
	3. Shrubs	>30%	<10%	10 - 40%
B.	OTHERS			
	1. Longitude	> 74.5228815	< 74.4705785	74.4966602 to 74.7703032
	2. Latitude	>15.8049607	<15.6947622	15.8920783 to 16.2950963
	3. No of Trees Per 100 Sq. Meters	Scary <150 (thorny trees)	Dense forest >250 (big trees)	Up to 200 (mixed, medium-sized)
	4. Water source (Bore-Wells, Wells, And Rivers)	<2 water body	>5 Water Body with a good amount of water	2-5 moderate amounts of water
	5.Colour of Mud	Black & Ash	Brown & Red	Black, Brown & Mixed Colour
	6.Agriculture land / crops	Jawar/sajje- Bajara/maize/	Paddy/rice	sugar cane /tobacco / ground nut/

- The sampling locations and *Bhumi Desha* wise maps of Belgaum district were demarked with different symbols and colours by using high-resolution Google earth App and the QGIS version 3.18.1.



- The designed *Bhumi Desha* wise map of Belagavi District showed all the types of *Bhumi Deshas*. The overall percentage distribution of *Deshas* is *Jangala Desha* 67.22% (9090.82 Sq.mts); *Sadarana Desha* 21.86% (2956.45 Sq.mts) and *Anupa* 10.91% (1475.30 Sq.mts) indicating *Jangala Desha* is more predominance compared to the other two *Deshas*.



4. The study showed that there is a significant association between *Desha* and *Prakriti* (P-value < 0.001) at a 5% level of significance.
5. The higher the proportion of *Vata pradhana Prakriti* was found in *Jangala desha*, *Kapha pradhanan Prakriti* in *Anupa desha* and *Samdhatuja Prakriti* in *Sadaranan desha*.

Limitation and Recommendation:

The current study is limited to only Belgaum District. Further recommended to other districts and parts of state and country.

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ANNEXURES

A. DATA COLLECTION – CASE PERFORMA

ASSESSMENT PARAMETERS OF *BHUMI DESHA*

Table No: 1 Assessment parameters of Bhumi Desha in Belgaum District

SN	ASSESSMENT PARAMETERS	JANGALA	ANUPA	SADARANA
Characters Per 100 sq. meters				
A.	VEGETATIONS			
	1. Thorny plants	>50%	< 10%	10 to 50%
	2. Big trees	<20%	>80%	20 to 80%
	3. Shrubs	>30%	<10%	10 - 40%
B.	OTHERS			
	1. Longitude	> 74.5228815	< 74.4705785	74.4966602 to 74.7703032
	2. Latitude	>15.8049607	<15.6947622	15.8920783 to 16.2950963
	3. No of Trees Per 100 Sq. Meters	Scary <150 (thorny trees)	Dense forest >250 (big trees)	Up to 200 (mixed, medium-sized)
	4. Water source (Bore-Wells, Wells, And Rivers)	<2 water body	>5 Water Body with a good amount of water	2-5 moderate amounts of water
	5. Colour of Mud	Black & Ash	Brown & Red	Black, Brown & Mixed Colour
	6. Agriculture land / crops	Jawar/sajje- Bajara/maize/	Paddy/rice	sugar cane /tobacco / ground nut/

ASSESSMENT OF DEHA PRAKRITI (GENETIC CONSTITUTION):**Table no-2 Prakriti Research Performa:**

Demographic Data:			
Name		Address	
Age		Sex	M/F
Income	/month	Subject	Healthy volunteer/ patient
Occupation		Desha	Jangala / Anupa / Sadarana

Anthropometrics:			
Sl no	Character	Assessment Criteria	
1	Height		
2	Body Weight (in kegs')		
3	Body Mass Index	18.5 to 24.9 (Healthy). 25 to 29.9 (Over weight), 30 to 39.9 (Obese)	
4	Waist Hip Ratio	0.9 Males o.85 Females > 1.0 High Risk	
5	Skin Fold Thickness	Men – 2.5 mm ; Women - 18.0 mm	
		Supra Iliac	
		Triceps.	
		Sub Scapular's	
6	Mid Arm Circumference for adults	Male -- ≥ 23 cms Female-- ≥ 22 cms –	
7	Abdominal Circumference	Male – 102 cms Female – 88 cms	

Body:										
Sl No	Character	Assessment Criteria								
1	Skin	Ruksha/Snigdha	-1	-2	-3	0	+1	+2	+3	
		Softness of Skin	0		+1		+2		+3	
		Cracked Body Parts	Sole				Palm			
		Skin Reactive= Redness even on pinch & on exposure to sunlight etc	Yes= 1				No = 0			
	Prominent vein and tendons	No Sira Pratana= 0				Sira pratana present= 1				
	No. of Freckles / Black Moles	No.-				Area				
2	Joints	Sound from joints while Walking / movements. (Present-1, Absent-0)	0		1					
		Unusual movement of body parts of subject: (Present-1, Absent-0)	0		1					
3	Hair	Ruksha - Snigdha	-1		0		+1			
	Texture	Grey	White & Coppery		Black		Black & Shiny			
	Color	Scanty	Thin		Thick		Plenty			
	Distribution	- Absent-0, /Present-1	-0				-1			
	Baldness/Premature graying	Age of Baldness attainment								
4	Voice: Nature of Voice	Dry /Unclear /Low pitched= -1	Normal= 0		Slow/ Sweet/ Melodious= +1		High pitched/ Sharp /Loud= +2			
5	Appetite: Nature of Appetite	Vishamagni= -2	Mandagni= -1		Samagni= 0		Tikshnagni= +1			
	Number of eating's per day	1 / 2 / 3 / 4 / More								
6	Sweat: Amount of secretion	Low= -1	Normal= 0		Excess= +1					
	Odor	- Absent= 0		Present= 1						
7	Sleep : Nature of sleep	Jagaruka= -1 Alert / Interrupted	Normal= 0		Deep Sleep = +1 Excess sleep					
	Disturbed sleep for any other cause									
9	Tolerance: Tolerance / Likes/Preferences	Normal= 0	Cold= 1		Hot= 2					
	Activity of subject: Observation from Physician	Slow= -1		Normal= 0		Fast = +1				

10	Appearance: Overall appearance of person	Irritating = -1	Comfort= 0	Pleasing= +1	
12	Children: No. of children	Male=	Female=		
14	Morbidity:	No			
	Present health condition:	Recurrent Health Problems= Frequency/ Year.	Nil= 0,	Repeated= 1	
		Frequency of Common Cold/ Year.			
		Frequency of Fever / Year.			
	Previous illness:	No.=	Diseases:		
	Diseases: Doshic Predominance:	Vataja / Pittaja / Kaphaja.			
15	<i>DOSHA</i>	<i>DOMINANT GUNA</i>			
	<i>VATA</i>	Ruksha, Parusha, Vishada, Bahu, Laghu, Sighra, Sita, Cala			
	<i>PITTA</i>	Ushna, Visra, Drava, Tikshna, Katu, Amla			
	<i>SLESHMA</i>	Sara, Mridu, Snigdha, Slakshna, Sandra, Vijjila, Accha, Sita, Manda, Sthaimitya, Madhurya, Guru			
16	DEHAPRAKRIRI:				

ANNEXURE

B. INFORMED CONSENT & PATIENT INFORMATION SHEET

1. KANNADA LANGUAGE:

**KLE University's
Shri B.M. Kankanawadi Ayurveda Mahavidyalaya Shahapur
Belagavi.**

ಒಪ್ಪಿಗೆ ಪತ್ರ (ಸಮ್ಮತಿ ಪತ್ರ)

ಒಪ್ಪಿಗೆ ಪತ್ರವನ್ನು ನಾನು ಓದಿಕೊಂಡಿದ್ದೇನೆ/ನನಗೆ ಓದಿ ತಿಳಿದಿದೆ, ಯಾವುದೇ ತರಹದ ಪ್ರಶ್ನೆ ಅಥವಾ ಶಂಕೆಗಳಿಗೆ ಪ್ರಶ್ನೆ ಕೇಳುವ ಅವಕಾಶ ಕೊಡಲಾಗಿದೆ. ಕೇಳಿರುವ ಪ್ರಶ್ನೆಗಳಿಗೆ ನನಗೆ ಸಮಾಧಾನಕರ ಉತ್ತರ ಸಿಕ್ಕಿದೆ. ನನಗೆ ಅಥವಾ ನನ್ನ ಅಭ್ಯಾಸದಲ್ಲಿ ಇಚ್ಛೆ ಇಲ್ಲದಲ್ಲಿ ನಾನು ನನ್ನ ಸ್ವಇಚ್ಛೆಯಿಂದ ಭಾಗವಹಿಸುವ ನಿರ್ದಾರವನ್ನು ಹಿಂಪಡೆಯಬಹುದು, ಇ ಅದ್ಯಯನದಿಂದ ನನ್ನ ಮೇಲೆ ಯಾವುದೇ ತರಹದ ಪರಿಣಾಮ ಆಗುವದಿಲ್ಲವೆಂದು ನನ್ನ ಭಾವನೆ ಆಗಿದೆ.

- ೧) ನಾನು ಈ ಅಭ್ಯಾಸದಲ್ಲಿ ಭಾಗವಹಿಸಲು ಒಪ್ಪಿಗೆ ನೀಡಿದ್ದೇನೆ. ನಾನು ಸಹಿ ಮಾಡಿರುವಂತಹ ಈ ಒಪ್ಪಿಗೆ ಪತ್ರವು ಅನ್ವೇಷಕ/ಸಂಶೋಧಕರ ಕೆ.ಎಲ್.ಇ ಆಯುರ್ವೇದ ಕಾಲೇಜು ಮತ್ತು ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ಕಾಯ್ದಿರಿಸಲಾಗುವುದೆಂದು ನನಗೆ ತಿಳಿಸಲಾಗಿದೆ.

ಹೆಸರು:_____

ಸಹಿ ಅಥವಾ ಎಡ ಹೆಬ್ಬರಳಿನ ಗುರುತು :_____

ದಿನಾಂಕ:_____,_____,_____

ಸಾಕ್ಷಿದಾರರ ಹೆಸರು:_____

(ಓದು ಬರಹ ಬರದಿದ್ದರೆ)

ಸಹಿ:_____ದಿನಾಂಕ_____,_____,_____

ಜವಾಬ್ದಾರಿ ಸಂಬಂಧಿ ನಿವೇದನ

ನಾನು ಈ ಅಭ್ಯಾಸದ ಸ್ವರೂಪ, ಉದ್ದೇಶ, ಲಾಭ, ನಷ್ಟಗಳ ಬಗ್ಗೆ ಪ್ರಯುಕ್ತರಿಗೆ ಮಾಹಿತಿ ನೀಡಿದ್ದೇನೆ. ಎಲ್ಲ ಪ್ರಶ್ನೆಗಳಿಗೆ ನಾನು ಉತ್ತರ ಕೊಡಲು ಸಿದ್ಧನಾಗಿದ್ದೇನೆ ಮತ್ತು ಎಲ್ಲ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರ ಕೊಟ್ಟಿರುತ್ತೇನೆ. ಪ್ರಯುಕ್ತನು ಎಲ್ಲವನ್ನೂ ಸ್ಪಷ್ಟವಾಗಿ ತಿಳಿದುಕೊಂಡವನಾಗಿರುತ್ತಾನೆ ಮತ್ತು ತನ್ನ ಸ್ವಇಚ್ಛೆಯಿಂದ ಈ ಒಪ್ಪಿಗೆ ಪತ್ರಕ್ಕೆ ಸಹಿ ಹಾಕಿರುವುದಾಗಿ ನನಗೆ ಅನಿಸಿದೆ.

ಅನ್ವೇಷಕ/ಸಂಶೋಧಕರ

ಹೆಸರು:-----

ಸಹಿ:-----

ದಿನಾಂಕ:-----,-----,-----

Translated By :-Dr. Vinod Gurav;

Verified/ Approved By :-Dr. B.S.Prasad

**ಕೆ.ಎಲ್.ಇ ವಿಶ್ವವಿದ್ಯಾಲಯದಶ್ರೀ ಬಿ.ಎಮ್.ಕಂಕನವಾಡಿ ಆಯುರ್ವೇದ ಮಹಾವಿದ್ಯಾಲಯ
ಅಧ್ಯಾಯನದ ಮಾಹಿತಿ ಪತ್ರ**

ಅಧ್ಯಯನದ ಹೆಸರು:

ಡಿಟರ್ಮೈನಿಂಗ್ ಜೀಯೋಕೊಲೊಜಿಕಲ ಪ್ಯಾರಾಮೀಟರ ಫ್ಲಾರ ಡೀಜೈನಿಂಗ್ ದೇಶವೈಜ ಮ್ಯಾಪ್ ಆಫ್ ಬೆಲಗಾವಿ ಡಿಸ್ಟ್ರಿಕ್ಟ್ ಮತ್ತು ಅಸೆಸ್ ಮೆಂಟ್ ಆಫ್ ದೇಶವೈಜ ಪ್ರಕೃತಿ ಪ್ರೀಡೊಮಿನನ್ಸ್. - ಅ ಕ್ರಾಸ ಸೇಕ್ಸನಲ್ ಸ್ಟಡಿ.

ಸಂಶೋಧಕರು:

೧. ಗೃಹ:

ಡಾ: ಬಿ. ಎಸ್, ಪ್ರಸಾದ
ಪ್ರಾಂಶುಪಾಲರು
ಕೆ.ಎಲ್.ಇ ವಿಶ್ವವಿದ್ಯಾಲಯದ
ಶ್ರೀಬಿ.ಎಮ್.ಕಂಕನವಾಡಿ ಆಯುರ್ವೇದ
ಮಹಾವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

೨. ಮುಖ್ಯಸಂಶೋಧಕರು

ಡಾ: ವಿನೋದ. ಎಸ್. ಗುರವ
ಉಪನ್ಯಾಸಕರು/ರೀಡರ
ಕೆ.ಎಲ್.ಇ ವಿಶ್ವವಿದ್ಯಾಲಯದ
ಶ್ರೀಬಿ.ಎಮ್.ಕಂಕನವಾಡಿ ಆಯುರ್ವೇದ
ಮಹಾವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

ನಾನು ಡಾ: ವಿನೋದ. ಎಸ್. ಗುರವ ಉಪನ್ಯಾಸಕರು/ರೀಡರ ಕೆ.ಎಲ್.ಇ ವಿಶ್ವವಿದ್ಯಾಲಯದ ಶ್ರೀ ಬಿ.ಎಮ್. ಕಂಕನವಾಡಿ ಆಯುರ್ವೇದ ಮಹಾವಿದ್ಯಾಲಯದಲ್ಲಿ ಕೆಲಸ ಮಾಡುತ್ತಿರುವ ನಾನು ನಿಮ್ಮನ್ನು ಆಹ್ವಾನಿಸುತ್ತೇನೆ.

ನಾನು ಈಗ ನಿಮಗೆ ಈ ಅಧ್ಯಯನದ ಸಂಪೂರ್ಣ ಮಾಹಿತಿಯನ್ನು ಕೊಡುತ್ತೇನೆ. ಇದರಲ್ಲಿ ನಿಮಗೆ ಯಾವುದಾದರೂ ಸಂಶಯ ಕಂಡುಬಂದಲ್ಲಿ ಕೂಡಲೇ ಪ್ರಶ್ನಿಸಬಹುದು. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ನಿಮ್ಮ ಆರೋಗ್ಯದ ಬಗ್ಗೆ ಕೆಲವೊಂದು ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳಲಾಗುತ್ತದೆ. ನೀವು ಈ ಮಾಹಿತಿ ಪತ್ರವನ್ನು ಸ್ವತಃಓದಿದ ನಂತರ ನಿಮ್ಮ ಸ್ವಇಚ್ಛೆಯಿಂದ ಭಾಗವಹಿಸಬಹುದು.

ಅಧ್ಯಯನದ ಪರಿಚಯ ಮತ್ತು ಧ್ಯೇಯ:

ಆಯುರ್ವೇದವು ಒಂದು ಪ್ರಾಚೀನ ಭಾರತೀಯ ವೈದ್ಯಪದ್ಧತಿಯಾಗಿದ್ದು ಇವತ್ತಿಗೂ ಪ್ರಚಲಿತದಲ್ಲಿದೆ.

ಇದರಲ್ಲಿ ಆರೋಗ್ಯವನ್ನು ಕಾಪಾಡುವ ಮತ್ತು ಅದರ ಚಿಕಿತ್ಸೆಯು ವ್ಯಕ್ತಿಗತವಾಗಿರುತ್ತದೆ.

ಪ್ರತಿ ವ್ಯಕ್ತಿಯ ಪ್ರಕೃತಿಯು ಆ ವ್ಯಕ್ತಿಯ ಆಹಾರ, ಔಷಧಿ ಮತ್ತು ವಾತವರಣದ ಮೇಲೆ ಅವಲಂಬಿಸಿರುತ್ತದೆ. ಆದ್ದರಿಂದ ಯಾವುದೇ ಚಿಕಿತ್ಸೆ, ಜೀವನಶೈಲಿ ಮತ್ತು ಆಹಾರ ಮುಂತಾದವುಗಳ ಪರಿಷ್ಕೆ ಮಹತ್ವವಾಗಿರುತ್ತದೆ. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ನಾವು ಆಯುರ್ವೇದ ಪ್ರಕೃತಿಯನ್ನು ಪರಿಶೋಧಿಸುತ್ತೇವೆ. ಈ ಆಯುರ್ವೇದ ವಿಜ್ಞಾನವು ವಿಶ್ವವಿಖ್ಯಾತವಾಗುವದರೊಂದಿಗೆ ಆರೋಗ್ಯವನ್ನು ಕಡಿಮೆ ವೆಚ್ಚದಲ್ಲಿ ಕಾಪಾಡಬಹುದು.

ಅಧ್ಯಯನದ ಧ್ಯೇಯ:

ಆರೋಗ್ಯವಂತ ಜನಾಂಗೀಯ ಪ್ರಕೃತಿ ಮತ್ತು ಅವರ ಜೀವನಶೈಲಿ ವ್ಯತ್ಯಾಸಗಳ ಅಧ್ಯಯನ

ಪರೀಕ್ಷಾವಧಿ:

ಈ ಆರೋಗ್ಯ ಪ್ರಶ್ನೆ ಪರೀಕ್ಷೆಯು ೩೦ ನಿಮಿಷಗಳಲ್ಲಿ ಕೊನೆಗೊಳ್ಳಬಹುದು, ಇದಕ್ಕೆ ಒಪ್ಪಿದರೆ ನಾವು ನಿಮ್ಮ ಸಮ್ಮತಿಯನ್ನು ಒಪ್ಪಿಗೆ ಪತ್ರದಲ್ಲಿ ತೆಗೆದುಕೊಳ್ಳುತ್ತೇವೆ.

ಅಧ್ಯಯನದ ವಿಧಾನ:

ನಾವು ನಿಮ್ಮ ಪ್ರಕೃತಿಯ ಪರೀಕ್ಷೆಯನ್ನು ಪ್ರಶ್ನಾವಳಿಯೊಂದಿಗೆ ಪರೀಕ್ಷಿಸುತ್ತೇವೆ, ಇದರಿಂದ ನಮಗೆ ನಿಮ್ಮ ಮುಂದಿನ ಸಂಪೂರ್ಣ ಅಭ್ಯಾಸಕ್ಕೆ ಸೇರಿಸುವ ಮನವರಿಕೆ ಆಗುತ್ತದೆ. ಇದಲ್ಲದೆ ನಿಮ್ಮ ತೂಕ, ಎತ್ತರ, ನಾಡಿ ಮತ್ತು ಬಿ.ಪಿ (ರಕ್ತದೊತ್ತಡ) ಯೊಂದಿಗೆ ನಿಮ್ಮ ಹಿಂದಿನ ವ್ಯಾಧಿಗಳ ವೃತ್ತಾಂತ ಅಧ್ಯಯನಕ್ಕೆ ತೆಗೆದು ಕೊಳ್ಳಲಾಗುತ್ತದೆ.

ಮಹತ್ವದ ಪರಿಣಾಮ ಮತ್ತು ಉಪಯೋಗಗಳು:

ಈ ಅಧ್ಯಯನದಿಂದ ನಿಮಗೆ ನಿಮ್ಮ ಪ್ರಕೃತಿ ಅನುಗುಣವಾಗಿ ನಿಮ್ಮ ಶರೀರವನ್ನು ಮತ್ತು ಅದರ ಜೀವನಶೈಲಿಯನ್ನು ಅಳವಡಿಸಿಕೊಳ್ಳಬಹುದು. ನಮ್ಮ ಪ್ರಕಾರ ಈ ಅಭ್ಯಾಸದ ಫಲವು ಮುಂದಿನ ಜನಾಂಗಕ್ಕೆ ಉಪಯೋಗವಾಗಬಹುದು.

ಅಭ್ಯಾಸದ ಗುಪ್ತತೆ:

ನಿಮ್ಮ ವಯಕ್ತಿಕ ಹಾಗೂ ಗೌಪ್ಯ ವಿಷಯಗಳನ್ನು ಕಾನೂನು ಬದ್ಧವಾಗಿ ರಕ್ಷಿಸಲಾಗುವುದು. ಎಲ್ಲಾ ಮಾಹಿತಿ ಪತ್ರಗಳನ್ನು ರಹಸ್ಯವಾಗಿ ಇಡಲಾಗುವುದು ಹಾಗೂ ವೈಜ್ಞಾನಿಕ ಅಭ್ಯಾಸಕ್ಕೆ ಮಾತ್ರ ಉಪಯೋಗಿಸಲಾಗುವುದು.

ಈ ಸಂಪೂರ್ಣ ಮಾಹಿತಿಯನ್ನು ಕೇವಲ ಸಂಶೋಧಕರಿಗೆ ಮಾತ್ರ ಒದಗಿಸಲಾಗುವುದು. ಈ ಮಾಹಿತಿಯನ್ನು ಸಾರ್ವಜನಿಕರು ಅಥವಾ ಅಭ್ಯಾಸಕ್ಕೆ ಸಂಬಂಧವಿಲ್ಲದ ವ್ಯಕ್ತಿಗಳಿಗೆ ಕೊಡಲಾಗುವುದಿಲ್ಲ. ಕೇವಲ ವಿದ್ಯಾಲಯದ ನೀತಿ ಸಂಘ (ಇ.ಸಿ) ಮತ್ತು ಬೇರೆ ಕಾನೂನು ಬದ್ಧ ಸರಕಾರಿ ಅಧಿಕಾರಿಗಳು ಮಾತ್ರ ಪರೀಶೀಲಿಸಬಹುದು. ನಿಮ್ಮ ಎಲ್ಲ ಸಂಶಯ ಮತ್ತು ಪ್ರಶ್ನೆಗಳಿಗೆ ಸಂಶೋಧಕರು ತಕ್ಕ ಉತ್ತರ ನಿಡುವರು.

ಸ್ವಇಚ್ಛೆಯಿಂದ ಭಾಗವಹಿಸಬಹುದು:

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ನಿಮ್ಮ ಭಾಗವಹಿಸುವಿಕೆ ಸ್ವಇಚ್ಛೆಯಿಂದ ಇರುವುದು. ನಿಮ್ಮ ಇಚ್ಛೆಯ ಬದಲಾವಣೆಯಿಂದ ಕೆ.ಎಲ್.ಇ ಆಯುರ್ವೇದ ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ನಿಮ್ಮ ವೈದ್ಯಕೀಯ ಚಿಕಿತ್ಸೆಯಲ್ಲಿ ಯಾವುದೇ ತರಹದ ಪರಿಣಾಮ ಆಗುವುದಿಲ್ಲ.

ಭಾಗವಹಿಸುವ ವೆಚ್ಚ:

ನೀವು ಯಾವುದೇ ವಿಧದ ಖರ್ಚು ಮಾಡುವ ಅವಶ್ಯಕತೆ ಇರುವುದಿಲ್ಲ. ನಿಮ್ಮ ಅಭ್ಯಾಸಕ್ಕೆ ಆಗುವ ವೆಚ್ಚವನ್ನು ಅಭ್ಯಾಸದ ಮುಖ್ಯಸ್ಥರು ಭರಿಸುತ್ತಾರೆ.

ಹೊಸ ಮಾಹಿತಿಗಳು:

ನಮಗೆ ಅಭ್ಯಾಸದೊಂದಿಗೆ ಯಾವುದೇ ತರಹದ ಹೊಸ ಮಾಹಿತಿದೊರಕಿದಲ್ಲಿ ಮತ್ತು ಅದರಿಂದ ನಿಮ್ಮ ಭಾಗವಹಿಸುವಿಕೆಯಲ್ಲಿ ವ್ಯತ್ಯಾಸವಾಗುವುದಾದರೆ, ಅದನ್ನು ನಿಮಗೆ ತಿಳಿಸಲಾಗುವುದು. ಅದರಂತೆ ಅಭ್ಯಾಸದಲ್ಲಿ ನಿಮ್ಮ ಭಾಗವಹಿಸುವಿಕೆಯನ್ನು ಪುನಃ ಪರೀಕ್ಷಿಸಲಾಗುವುದು.

ಸಂಪರ್ಕಿಸಬಹುದಾದ ಮಾಹಿತಿ:

ನಿಮಗೆ ಯಾವುದೇ ತರಹದ ಅಧ್ಯಯನದ ಪ್ರಶ್ನೆಗಳಿದ್ದರೆ, ಸಂಶೋಧಕರನ್ನು ಸಂಪರ್ಕಿಸಬಹುದಾದ ಮಾಹಿತಿಯು ಈ ಕೆಳ ಕಂಡಂತಿದೆ.

ಇದರಲ್ಲಿ ನಿಮಗೆ ಕಾನೂನು ಬದ್ಧವಾದ ಅಭ್ಯಾಸದ ಯಾವುದೇ ಪ್ರಶ್ನೆಗಳಿದ್ದರೆ, ಸೆಕ್ರೆಟರಿ, ವಿದ್ಯಾಲಯದ ನೀತಿ ಸಂಘ (ಇ.ಸಿ) ಮತ್ತು ವಿದ್ಯಾಲಯವನ್ನು ಸಂಪರ್ಕಿಸಬಹುದು.

ಸಂಪರ್ಕಿಸುವ ಪೂರ್ಣ ವಿಳಾಸ:

ಶ್ರೀ ಬಿ.ಎಮ್.ಕಂಕನವಾಡಿ ಆಯುರ್ವೇದ ಮಹಾವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ. ಫೋನ್: 9448569289

ಸಂಶೋಧಕರು:

೪. ಮುಖ್ಯಸಂಶೋಧಕರು

ಡಾ: ವಿನೋದ. ಎಸ್. ಗುರವ

ಉಪನ್ಯಾಸಕರು/ರೀಡರ

ಕೆ.ಎಲ್.ಇ ವಿಶ್ವವಿದ್ಯಾಲಯದ

ಶ್ರೀಬಿ.ಎಮ್.ಕಂಕನವಾಡಿ ಆಯುರ್ವೇದ

ಮಹಾವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

೫. ಗೈಡ್:

ಡಾ: ಬಿ. ಎಸ್, ಪ್ರಸಾದ

ಪ್ರಾಂಶುಪಾಲರು

ಕೆ.ಎಲ್.ಇ ವಿಶ್ವವಿದ್ಯಾಲಯದ

ಶ್ರೀಬಿ.ಎಮ್.ಕಂಕನವಾಡಿ ಆಯುರ್ವೇದ

ಮಹಾವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

2.MARATHI LANGUAGE:

के.एल.ई यूनविरसटी चे शरी बी.एम.कंकनवाडी आयुर्वेदकि महावदियालय

संशोधक माहती पत्र

अभ्यासाचे नाव :-

‘डीटरमायनगि जीयो-इकोलोजीकल प्यारामीटर फॉर डजाइनगि देशवाइज म्याप ऑफ बेलगावी डसि्ट्रकिट & असेसमेंट ऑफ़ प्रकृति प्रेडोमिनांस अ कर्ॉस सेक्शनल स्टडी’

संशोधक :-

1. मुख्य-संशोधक:

डॉ.वनोद .एस. गुरव

उपन्यासक/रीडर

के.एल.ई शरी बी.एम.कंकनवाडी आयुर्वेदकि महावदियालय बेलगावी.

फ़ो.नो-८४९५९६६१९३

2. गाइड:

डॉ. बी.एस.प्रसाद

प्रीसपिल के.एल.ई शरी बी.एम.कंकनवाडी आयुर्वेदकि महावदियालय बेलगावी

फ़ो.नो-९४४८५६९२८९

मी डॉ.वनोद.एस.गुरव उपन्यासक/रीडर के.एल.ई शरी बी.एम.कंकनवाडी आयुर्वेदकि महावदियालय मध्ये कामावारती रुजू असलेले मी तुम्हाला आव्हान देतो की मी आता तुम्हाला या सर्वेचेबददल संपूर्ण माहती देतो याच्यामध्ये तुम्हाला कूठल्याही प्रकारचा संशय आल्यास सरळ तोंडी प्रश्न रूपाने वचारायला हरकत नाही या अभ्यासामध्ये तुमच्या आरोग्याबददल काही प्रश्न वचारन्यात येतील तुम्ही ही माहती पत्र स्वःता वाचून नंतर तुम्ही स्वइच्छेने भाग घ्यावयाचा आहे.

अभ्यासाचा परचिय आणघि रय :-

आयुर्वेद हे प्राचीन भारतीय वेद पध्दत आहे आतापर्यंत संपूर्ण प्रचलति आहे याच्यामध्ये आरोग्याला सांभालून आणघि चिकित्सा बददल माहती व्यक्तगित रुपात आहे प्रत्येक व्यक्तीचे प्रकृति त्याचा आहार, औषाद आणघि वातावरनावर अवलंबून असते. त्याचामूले कुठलेही चिकित्सा आणघि जीवन शैली आहार इत्यादी परीक्षा

अवशक्तेचे असते. या आयुर्वेद वज्जिज्ञानामधे आपन आपले आरोग्या कमी खरचामधे वाचावू शकतो.

परीक्षा अवधी :- ही आरोग्य परीक्षा २० मनिटिची आहे. याला मान्यकेल्यावर आम्ही तुमचे संमती पत्र स्वीकारु शकतो.

अभ्यासाचे वधिन :-

आम्ही तुमच्या प्रकृति परीक्षेचा प्रश्नपत्रिका पडतालून पाहतो. याच्यामूले आम्हाला पुडील संपूरण अभ्यासाला संमती समावषिट करून घेतो. याच्यामध्ये तुमचे वजन, ऊँची, नाडी, बीपी, याच्याबरोबर मागील व्याधिवृतांत अभ्यासामध्ये समावषिट करून घेतो.

महत्वाचे परनिमा व उपयोग

या अभ्यासामुले तुम्हाला तुमची प्रकृति आणि शरीरक्षमता यांची जीवनशैली वसितार करून घेवु शकता.

अभ्यासाची गुप्तता

तुमच्या व्यक्तगित आणि गुपति वषिय कानूनप्रकार बधपने रक्षण करण्यात येते . संपूरण माहतीपण गुप्त पधातनि ठेवण्यात येते आणि वज्जिज्ञानकि अभ्यासाला उपयोगात येते . ही संपूरण माहती केवल संशोधक मात्र बदलू शकतात . ही माहती सार्वजनकि अथवा सम्बन्ध नसलेल्या व्यक्तकिडे देण्यास येत नाही केवल वदियालयाचे आणि दुसरे कायदेबध सरकारी अधिकारी परशिलिनता करू शकतात . तुमचे संपूरण संशय आणि प्रश्नाना संशोधक पूरक उत्तर देतात.

स्वताहून भाग घेणे

या सर्वेमध्ये तुम्ही स्वइच्छेने भाग घेऊ शकता . जार तुमची इच्छा बददली तर याचा के.एल.ई. आयुर्वेदकि चकितिसावर कोणताही परणाम होणार नाही.

भागोपरचा खर्च

तुम्हास कुठल्याही प्रकारचा वविधि खर्च करायची आवश्यकता नाही. तुमच्या अभ्यासाला येणारा खर्च अभ्यासाचे मुख्य पुरवतात .

नवनि माहती

आम्हाला अभ्यासाबरोबर नवनि माहती मलिली तर मी तुम्हाला कलवति आणि तियानुसार तुमच्या भागदिरलि व्यत्यास झाल्यास ते तुम्हाला कलवनियात येते.

संपर्कामधली माहृती

तुम्हाला अभ्यासबद्दल कुठल्याही प्रकारचे प्रश्न असल्यास संशोधकांशी संपर्ककरून योग्य माहृती मलिावावी याचामध्ये तुमला कानुनबद्द अभ्यासमदले कुठलेही प्रश्न असल्यास सेक्रेटरी वदियालायाचे नतिसिंघ (इ, स) आण् वदियालयामाधे संपर्क करावे.

संपर्क करण्यासाठी पत्ता:

1. मुख्य--संशोधक:

डॉ.वनिद .एस. गुरव

उपन्यासक/रीडर

के.एल.ई शरी बी.एम.कंकनवाडी आयुर्वेदकि महावदियालय बेलगावी.

फ़ो.नो-८४९५९६६१९३

2. गाइड:

डॉ. बी.एस.प्रसाद

प्रीसपिल के.एल.ई शरी बी.एम.कंकनवाडी आयुर्वेदकि महावदियालय बेलगावी

फ़ो.नो-९४४८५६९२८९

के.एल.ई यूनविरसिटी चे श्री बी.एम.कंकनवाडी आयुर्वेदिक महाविद्यालय

संमती पत्र

संमती पत्र वाचून मी समजून घेतलेलो आहे आणि कुठल्याही प्रकारचे प्रश्न वचारायला परवानगी दिलेली आहे. आणि विचारलेल्या प्रश्नाला मला समधानकारक उत्तर मळिले आहे , मला कवि माझ्या अभ्यासमध्ये इच्छा नसेल तर मी माझ्या स्वइच्छेने मागार घेवू शकतो. या अभ्यासमुळे माझ्या आरोग्यवृत्ती कोणताही परिणाम होणार नाही , असा विश्वास आहे .

मी अभ्यासमध्ये भाग घ्यायला संमती दिलेली आहे. माझ्या सहनिशी हे संमती पत्र संशोधक, के.एल.ई श्री बी.एम.कंकनवाडी आयुर्वेदिक महाविद्यालय आणि हॉस्पिटल मध्ये सादर केलेले आहे, असे मला कळवण्यात आले आहे .

नाव:

सही/ डाव्या अंगठ्याची ओळख.

दनांक:.....

साक्षदारांचे नाव :

(न लहिणारा वाचनारा असल्यास)

जबाबदारीबद्दल नविदन :

मी या अभ्यासाचे स्वरूप, उद्देश, लाभ, तोटा, याच्याबद्दल प्रयुक्ताना माहिती दिलेली आहे. सगळ्या प्रश्नांना उत्तर देण्यासाठी कुशल आहे. आणि प्रत्येकाला उत्तर दिलेले आहे. प्रयुक्ताना या बद्दल समजून घेतलेले आहे, आणि आपल्या स्वइच्छेने या संमती पत्रावारती सही कन्यासाठी हरकत नाही असे वाटते.

संशोधक:

नाव:.....

सही:.....

दनांक:.....

रूपान्तर : डॉ वनिद गुरव .

स्वीकृत : डॉ बी.एस. प्रसाद

English Language:

KLE University's

Shri B.M. Kankanawadi Ayurveda Mahavidyalaya Shahapur Belagavi.

I confirm that I have read/it has been read to me and I have understood the information given to me about the study and had opportunity to ask questions/doubts to the investigator/researchers. The questions have been answered to my satisfaction. I know that I have a right to refuse to participate in the study and this will not affect the My Health.

1. I give consent for participation in this study.
2. I agree/do not agree to participate in the follow-up study

I am aware that after I sign this informed consent form, it will be kept with researcher (KLEU Shri BMK Ayurved Mahavidhyalaya Belgaum).

Name of the subject: _____

Signature/Left hand thumb impression: _____

Date: ____ / ____ / ____

Name of the impartial witness: _____

(If the subject is unable to read and write)

Signature of the witness: _____ Date: ____ / ____ / ____

Declaration of Responsibility: I have explained the nature, objectives, risks and benefits of the study to the subject. I made myself available for questions and have answered them fully. To the best of my knowledge, the subject has understood my explanation and has willingly signed this consent form.

Name of the Investigator/Researcher: _____

Signature: _____

Date: ____ / ____ / ____

KLE University's

Shri B.M. Kankanawadi Ayurveda Mahavidyalaya Shahapur Belagavi.

Subject Information Sheet for Screening

Title of the Study: Determining Geo-Ecological Parameters for Designing Desha Wise Map of Belgaum District and Assessment of Desha Wise Prakriti Predominance- A Cross Sectional Study

Investigators:

1. Research scholar:

Dr. Vinod. S. Gurav.
Reader.
KLEU Shri BMK Ayurved
Mahavidhyalaya Belgaum
Ph.No 8495966193.

2. Guide:

Dr. B. S. Prasad.
Principal
KLEU Shri BMK Ayurved
Mahavidhyalaya Belgaum
Ph.No 9448569289

Dr. Vinod. S. Gurav. Reader. work for KLEU Shri BMK Ayurved Mahavidhyalaya Belgaum and on behalf of the study Investigators I am inviting you to participate in this study. I am going to give you detailed information about this study. Please feel free to ask if you have any queries/doubts about any material I describe to you. The present process involves just a questionnaire that is designed to assess your health and well being. You may also read the text before you consent to participate in the study.

Introduction and purpose of the study: Ayurveda is an Indian system of medicine practiced even today. It has a personalized approach in maintenance of health and treatment of diseases. An individual's basic constitution, "Prakriti" to a large extent determines one's response to diet, drug and external environment. Therefore "Prakriti" is taken into consideration before recommendation of therapy, lifestyle, diet etc. In this research programme we are trying to explore the concept of Prakriti, which provide affordable healthcare solutions.

AIM of Study: To screen the healthy individuals of Belagavi population for their Prakriti and to correlate with Desha (Habitat).

Duration of participation in this screening process: It will take about 20 minutes for the study if you agree to participate. We would take a written consent for the purpose.

Study Procedures and Methods: We would conduct your interview using a questionnaire to assess Prakriti. In addition to this we are also going to assess weight, height, pulse, blood pressure. We would also like to collect past history for prevalence of diseases.

Potential Risks and benefits: There is no risk. Instead you benefited by participating in this study as we would just ask you questions regarding your health and well being. However, the outcomes of this study is expected to benefit the society at large.

Confidentiality: Privacy of participant and confidentiality of the information obtained would be protected as required by law. All the records would be kept confidential and used for scientific purposes only. Only study personnel will be allowed to see these records. These records will not be available to the public or any other person not connected with the project. Only the Institute's Ethics Committee and other regulatory bodies under Government of India law would have access to these records. If you have any doubts or questions the investigator/s will give you required answers or clarifications

Voluntary participation: Your participation in this study is voluntary and you have a right to refuse to participate at any stage without having to giving any reason.

Payment for participation: All expenses for study purpose alone will be borne by the Research scholar and you will not have to make any payment for participation in the study. As your participation is purely voluntary, you will not be compensated financially for participation.

New Information-In case any new information about this study becomes available to us, which we think might affect your continued participation in the study, it will be shared with you. The merits of continuing this study will be reconsidered in the light of the new information.

Contact persons- If you have any questions related to the study you are free to contact the investigators and you will be provided the available information. In case you have any doubts or questions about the rights as a study participant please contact the Secretary, Ethics Committee, Institute.

Investigators contacts:

3. Research scholar:

Dr. Vinod. S. Gurav.
Reader.
KLEU Shri BMK Ayurved
Mahavidhyalaya Belgaum
Ph.No 8495966193.

4. Guide:

Dr. B. S. Prasad.
Principal
KLEU Shri BMK Ayurved
Mahavidhyalaya Belgaum
Ph.No 9448569289

ANNEXURE

C.ETHICAL CLEARANCE LETTER:



KLE UNIVERSITY

(Formerly known as KLE Academy of Higher Education & Research, Belagavi)

[Declared as Deemed-to-be-University u/s 3 of the UGC Act, 1956 vide Government of India Notification No.F.9-19/2000-U.3(A)]

Accredited 'A' Grade by NAAC (2nd Cycle) Placed in Category 'A' by MHRD (GoI)

Office of the Director, Academic Affairs

JNMC Campus, Nehru Nagar, Bealavi-590 010, Karnataka State, India

☎: 0831-2444444/2493779 FAX: 0831-2493777 Web: <http://www.kleuniversity.edu.in> E-mail: diracademic@kleuniversity.edu.in

Ref.No.KLEU/EC/17-18/D- 99

16th May 2017

To,
Dr. Vinod Shivaling Gurav
Part Time Research Scholar,
2016-17 batch, Faculty of Ayurveda,
J. N. Medical College, **Belagavi**

Dear Research Scholar,

Sub:- Regarding Ethical Clearance.


The KLE University **Ethics Committee on Human Subjects** for Ph. D Research Project met on **22nd March 2017** to consider your application for approval of the research project "**Determining Geo-Ecological Parameters for Designing Desha Wise Map of Belgaum District and Assessment of Desha Wise Prakriti Predominance- A Cross Sectional Study.**"

As there are no ethical issues involved in your proposed research project, the committee has provided approval for this research project.

You are requested to report to Ethical Committee in case of the following:

1. Any deviation from or change of the protocol.
2. All serious adverse events.
3. Any changes in study documents.


(Dr. Anita Dalal)
Member Secretary,
Ph.D. Ethical Committee(Human),
K.L.E. University,
Belagavi.


(Dr. Anil Hogade)
Chairman
Ph.D. Ethical Committee(Human),
K.L.E. University,
Belagavi.

(In A.P. Hogade)

CC to: - The Director Academic Affairs, KLE University, Belagavi.
- The Director Research Foundation, KLE University, Belagavi.
- The Registrar, KLE University, Belagavi

ANNEXURE
D. PUBLICATION

[REDACTED]

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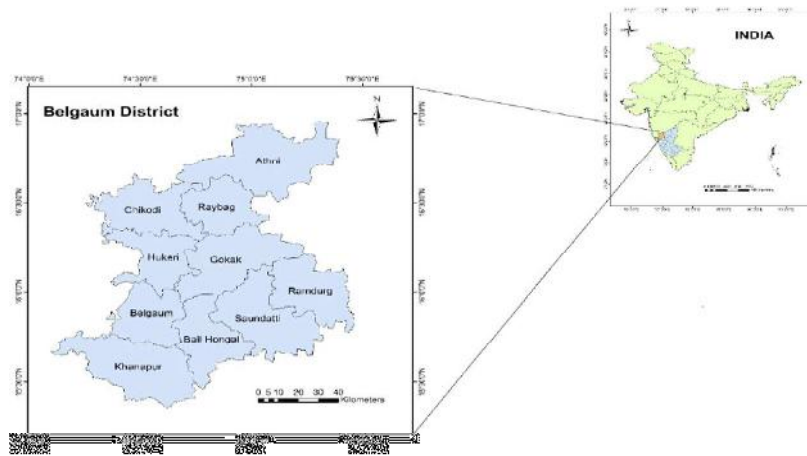
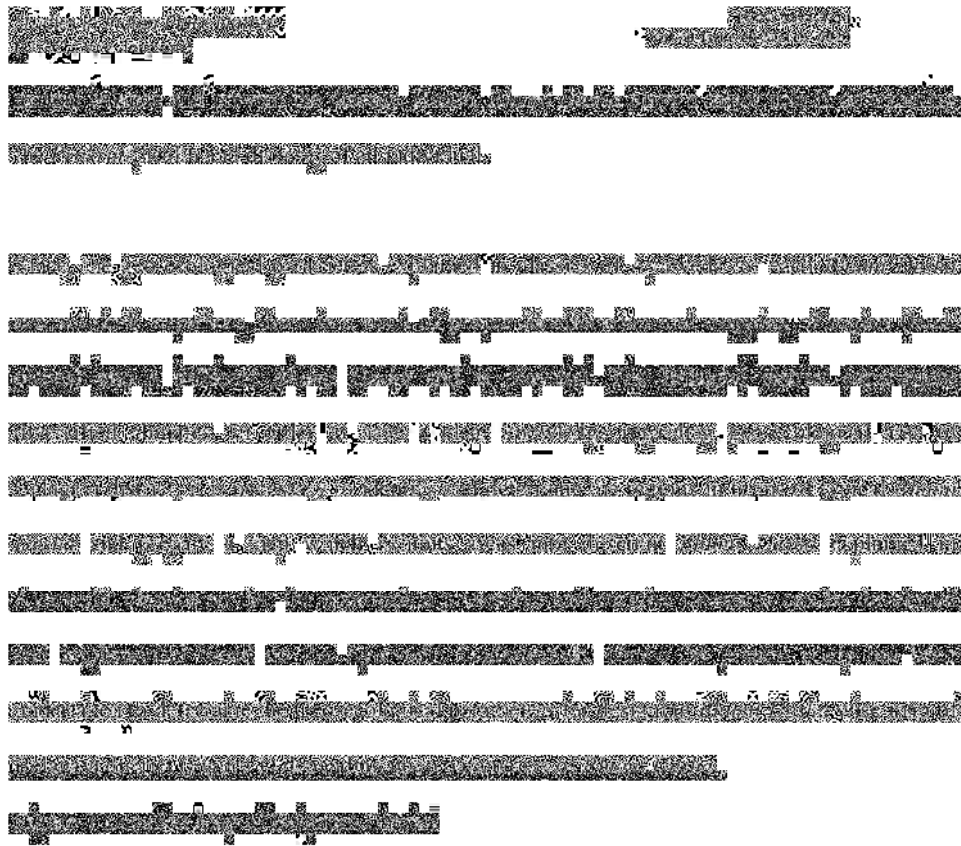
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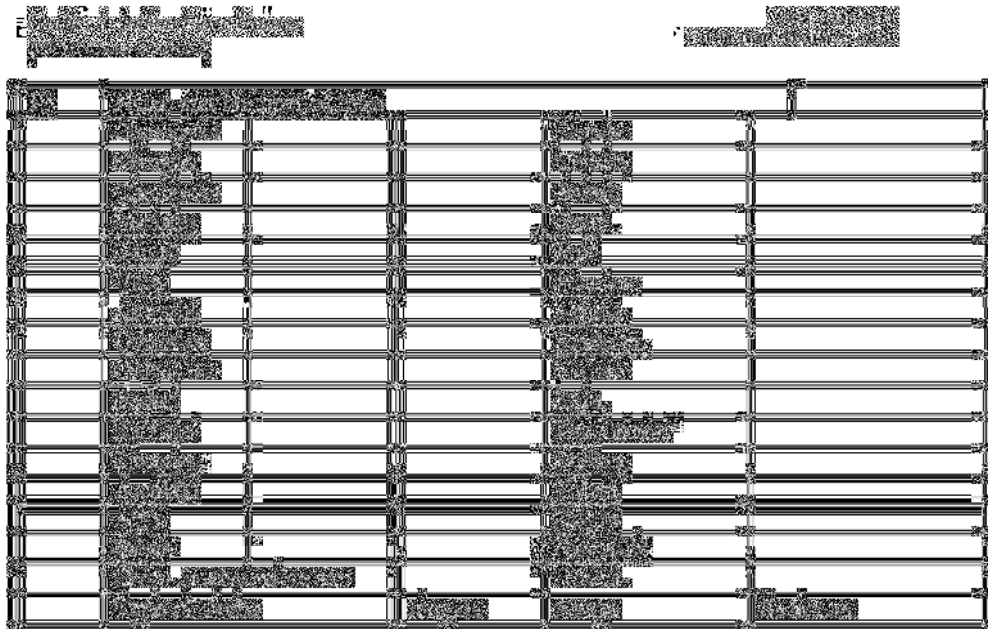
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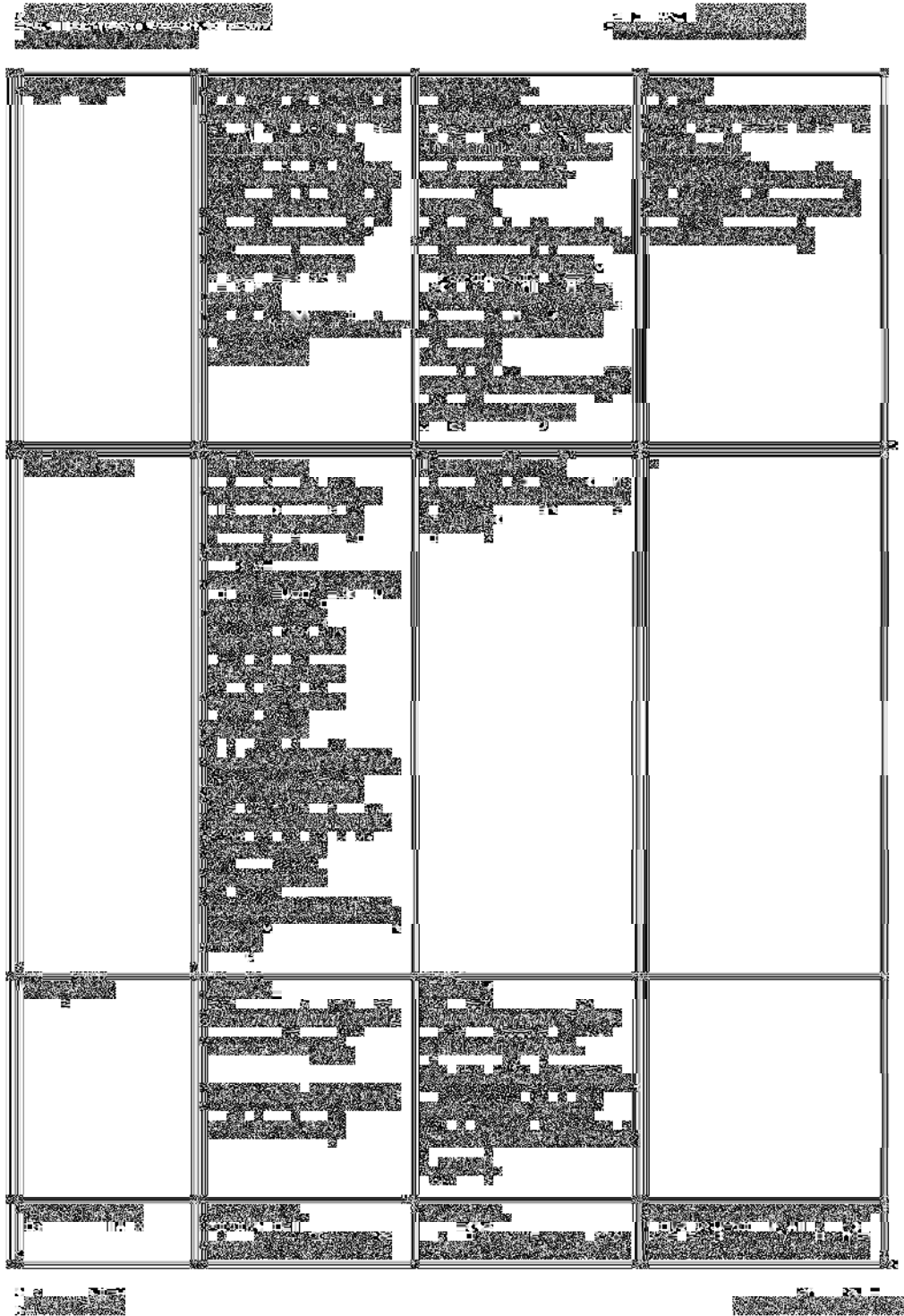


[The text in this section is completely illegible due to heavy noise and corruption.]

[The text in this section is completely illegible due to heavy noise and corruption.]

[The text in this section is completely illegible due to heavy noise and corruption.]

The image shows a large table with a grid structure. The table is divided into several rows and columns. The text within the cells is almost entirely obscured by a dense, dark, pixelated pattern, making it illegible. The table appears to have a header row and several data rows. Some cells in the first and last columns of the lower half of the table appear to be empty or contain very faint text. The overall appearance is that of a corrupted or redacted document page.

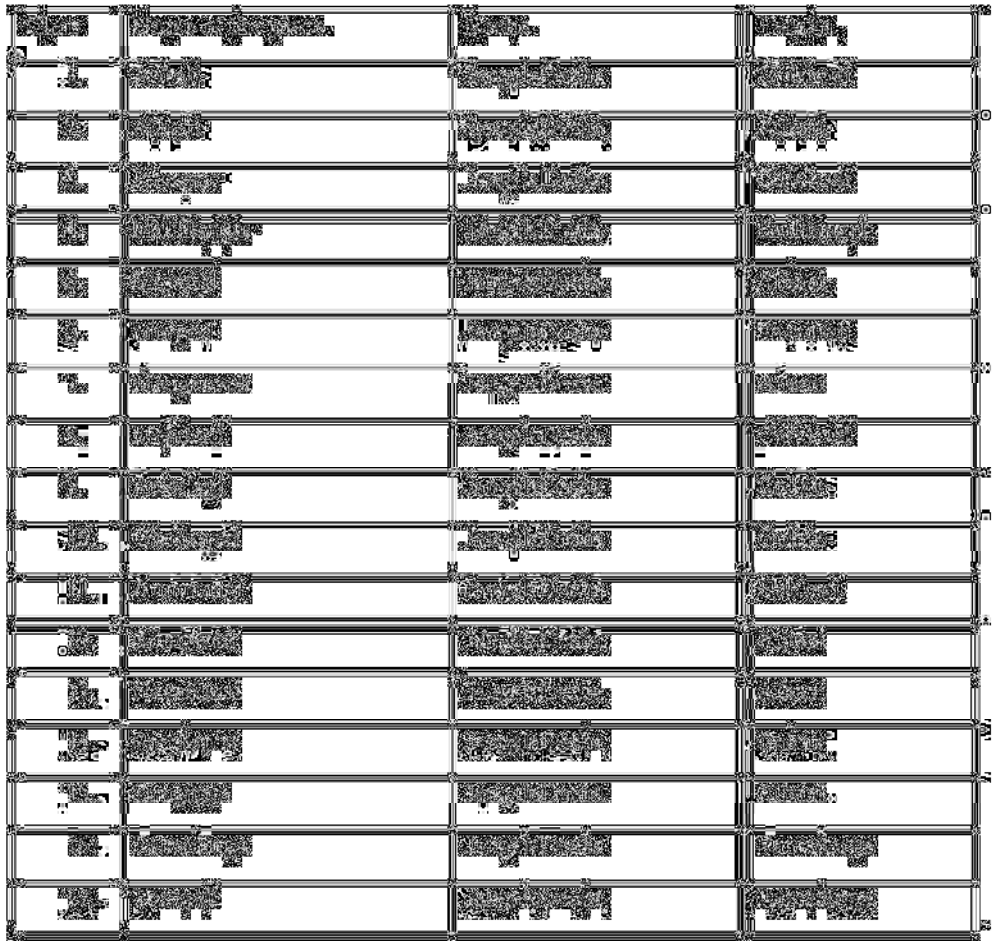
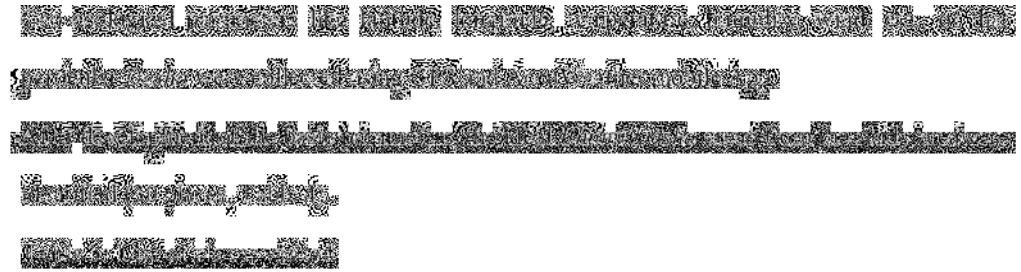
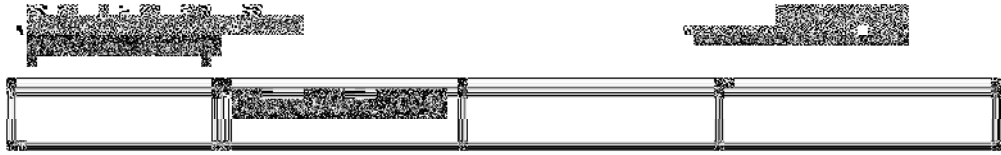


The image displays a 4x4 grid of 16 cells. Each cell contains a unique, complex pattern of black and white pixels, arranged in a way that resembles a barcode or a data matrix. The patterns are distributed across the grid, with some cells showing more dense clusters of black pixels and others showing more sparse arrangements. The overall appearance is that of a structured data visualization or a specific type of image processing output.

Figure 184

Figure 184

The image displays a 4x5 grid of 20 cells. Each cell contains a different pattern of black and white pixels, creating a complex, abstract visual structure. The patterns vary significantly, with some cells showing dense, irregular clusters of black pixels and others showing more sparse or structured arrangements. The overall effect is that of a corrupted or abstract data visualization, possibly representing a grid of binary data or a corrupted image.



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Annexure 1

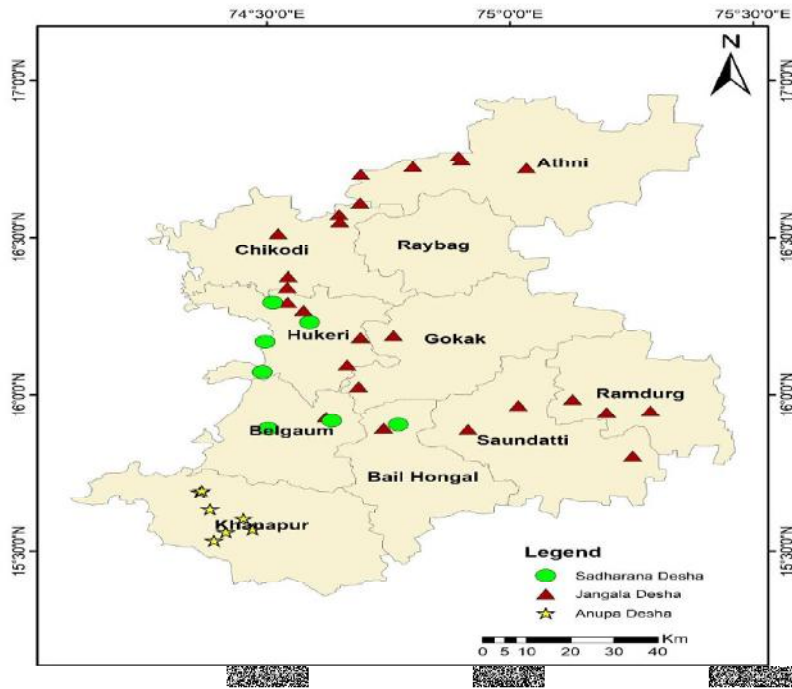
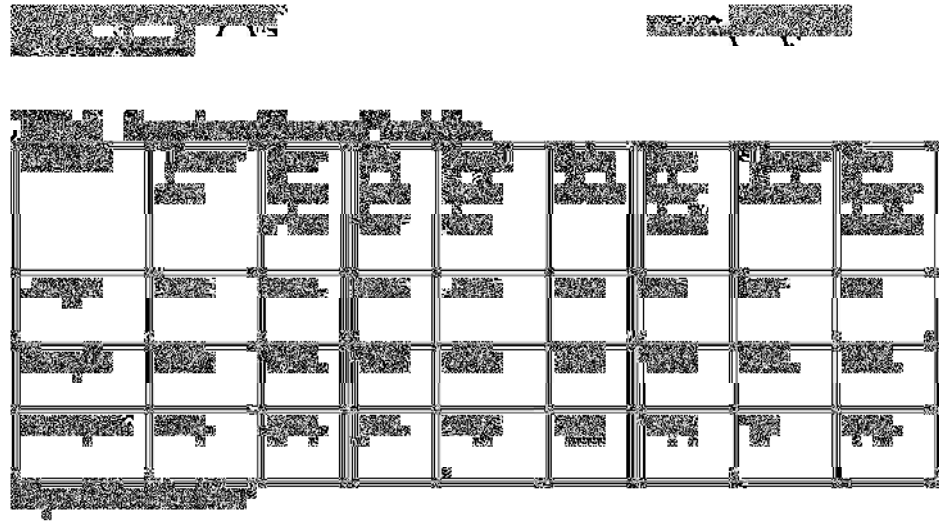
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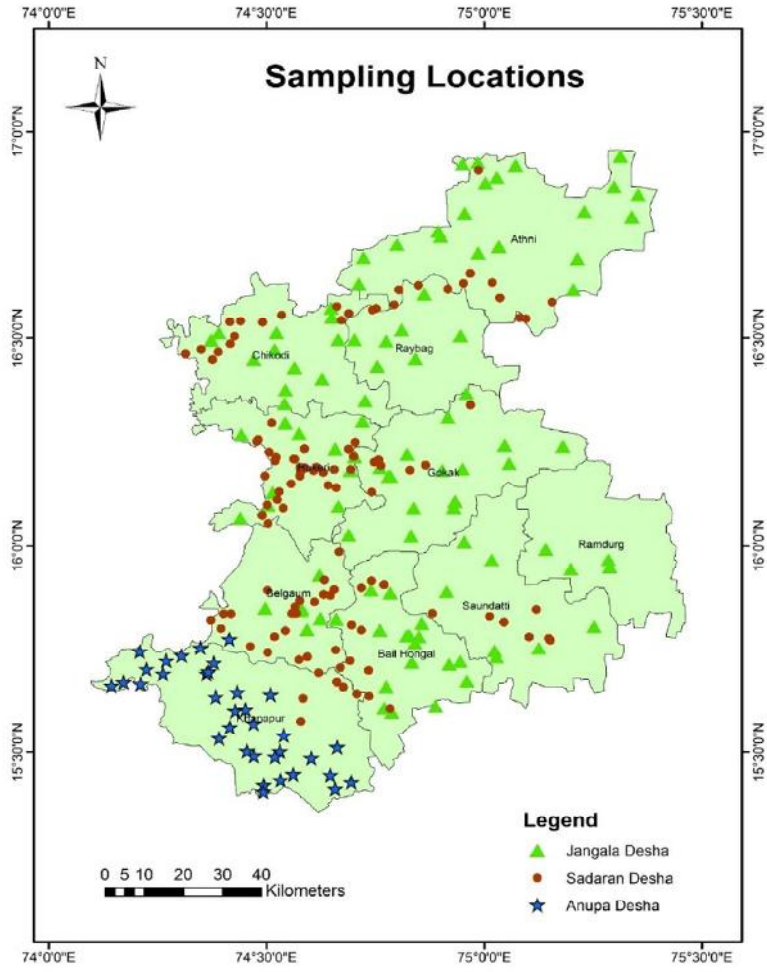
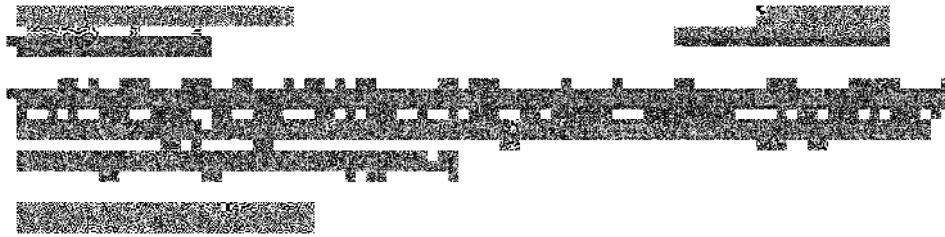
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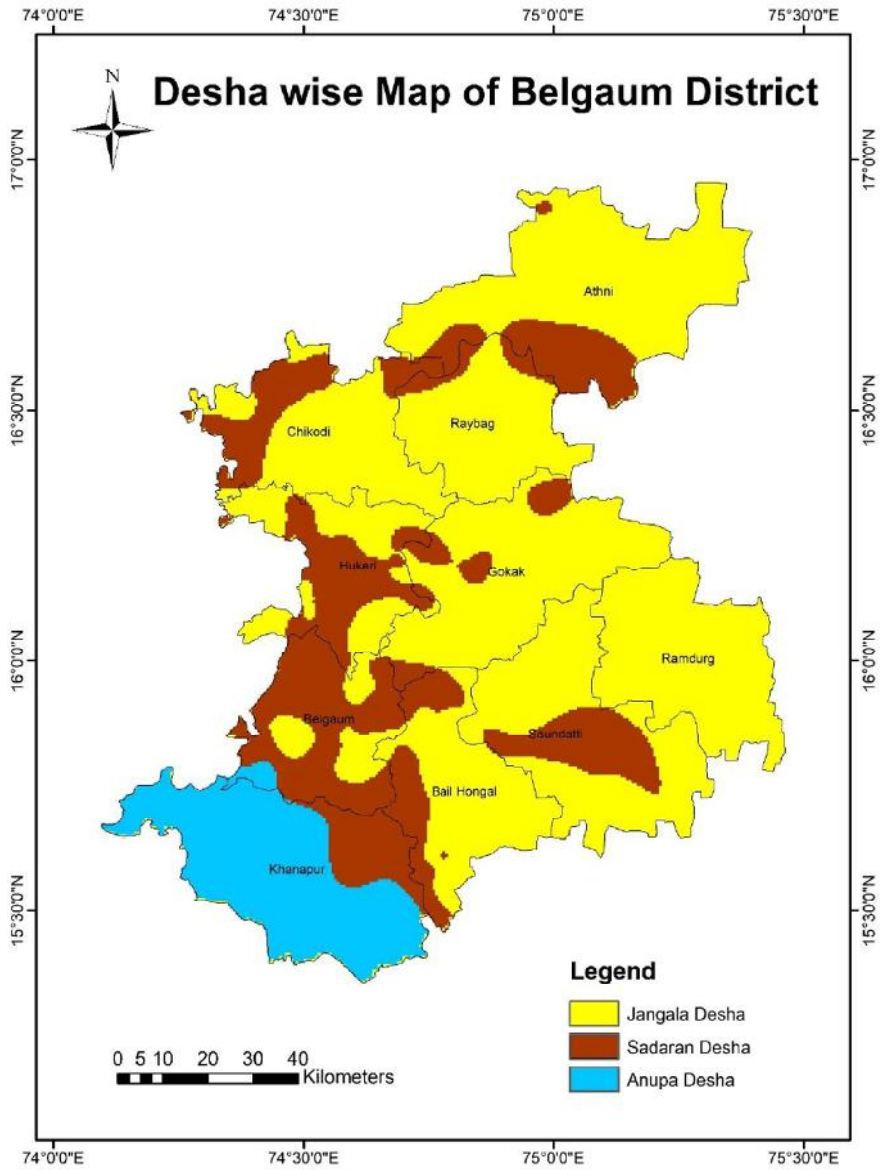
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6. [REDACTED]

178, pp 642-643.

7. <https://www.accuweather.com/en/in/india-weather-> Mobile android app.

8. [REDACTED]

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[The main body of the page contains several paragraphs of text that are completely obscured by heavy black redaction marks.]

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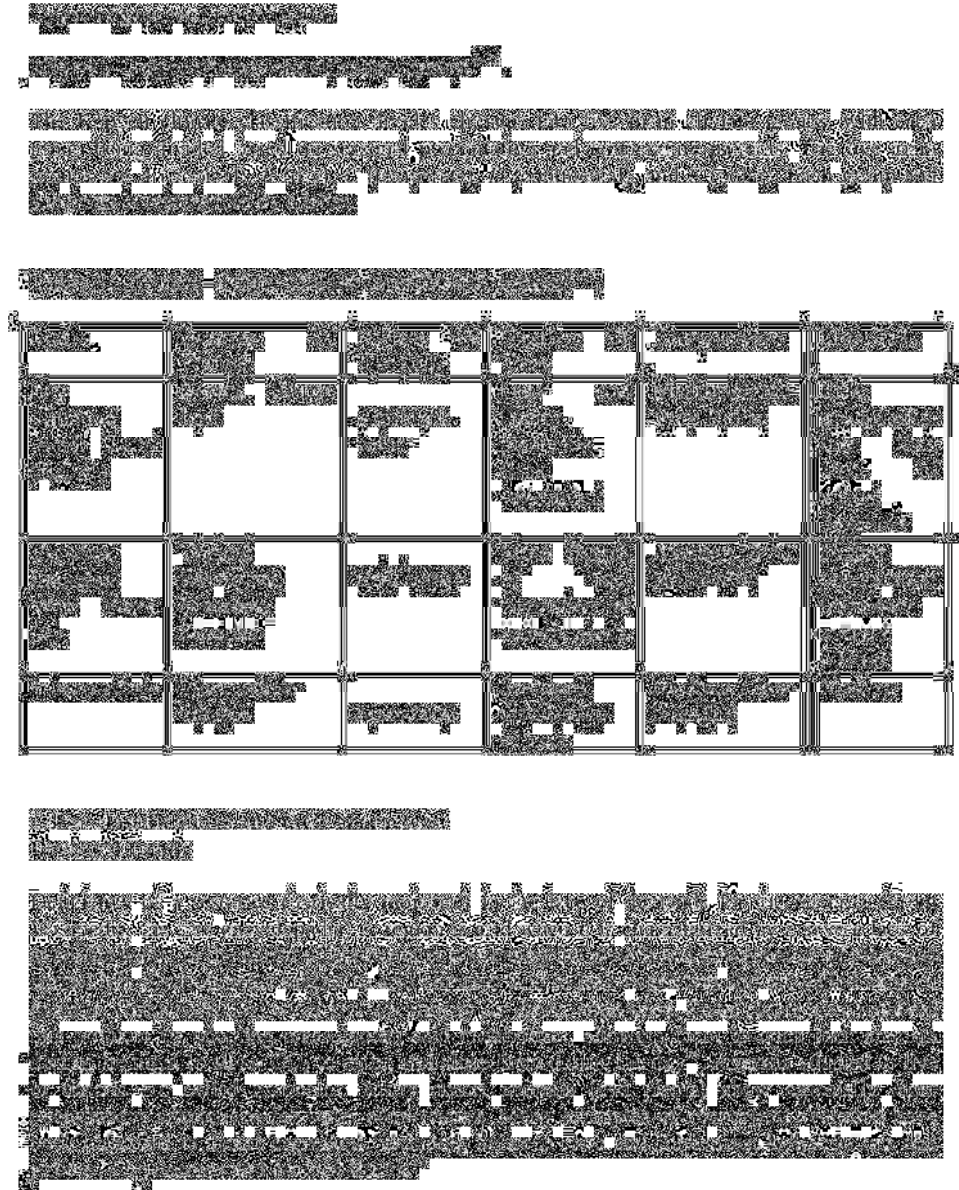
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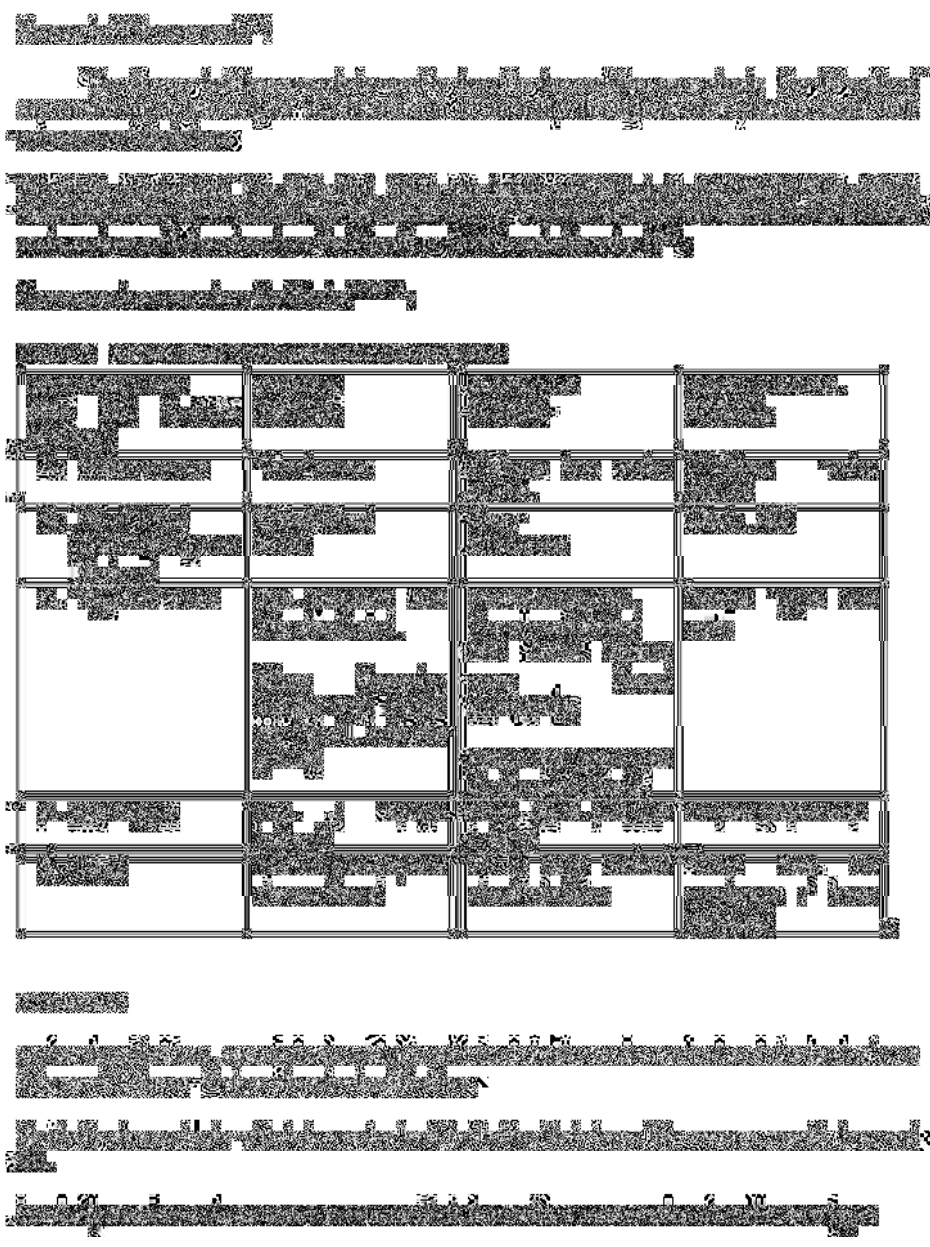
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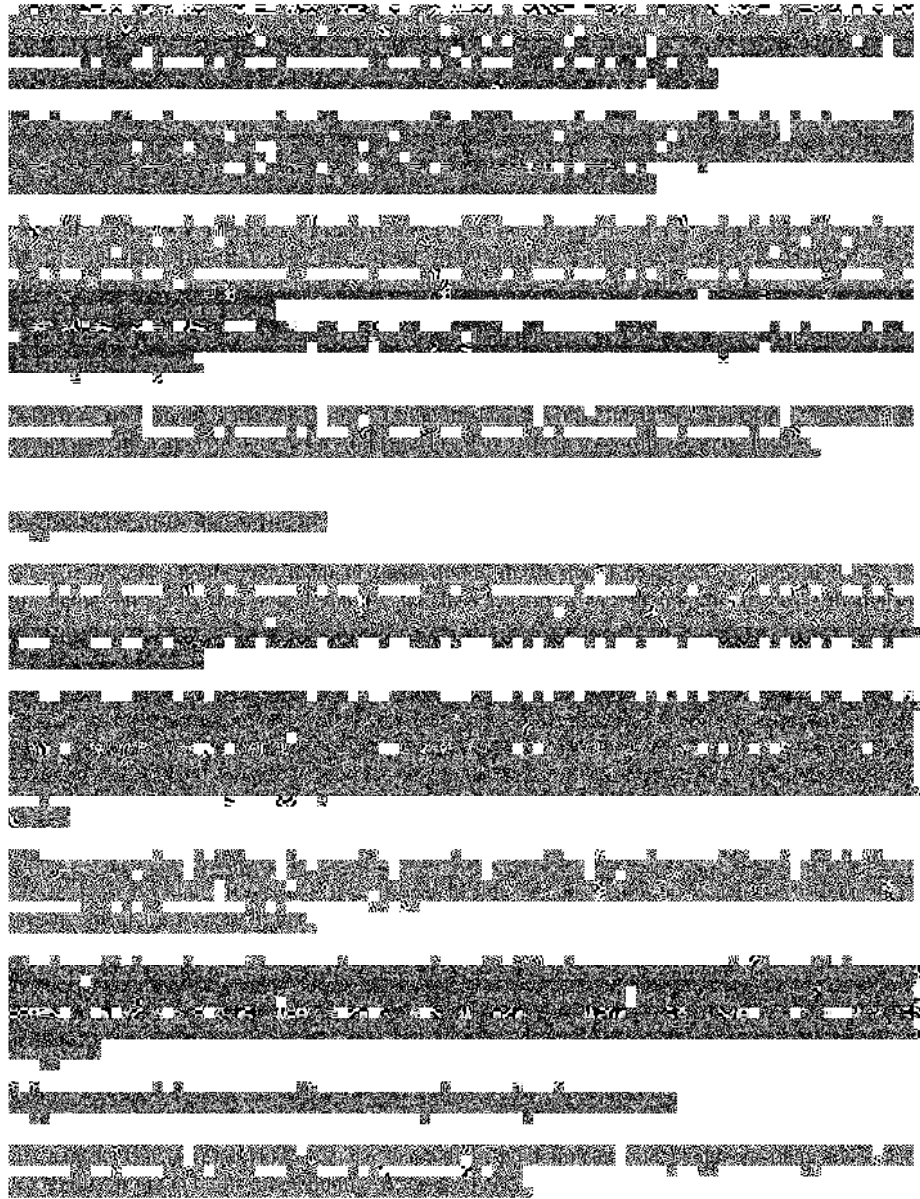
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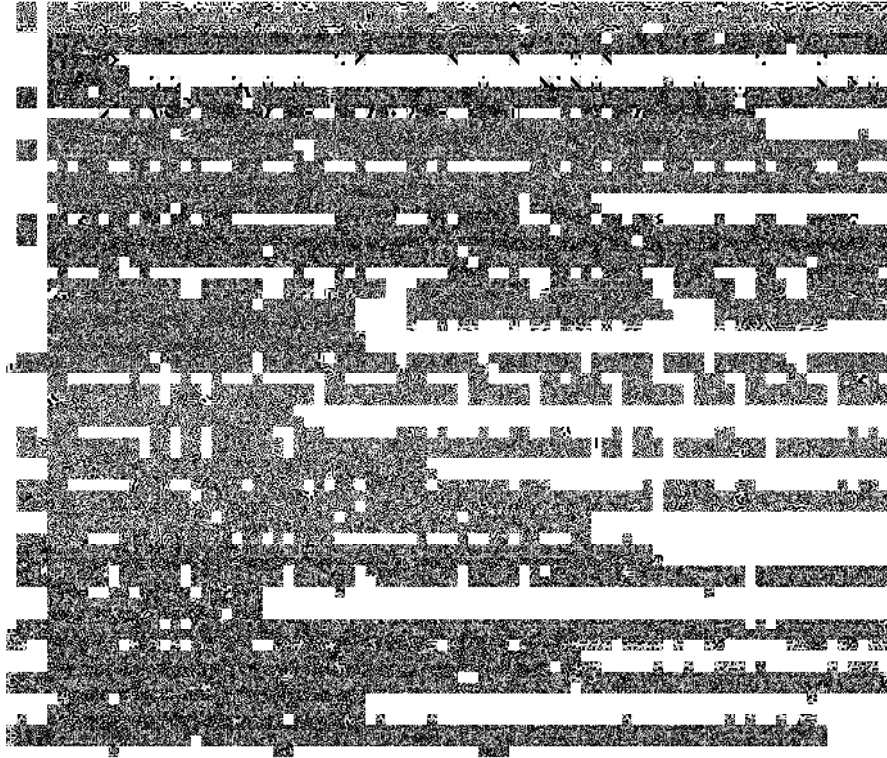
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[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]











ANNEUXRE

E. OTHERS

1. A pre-designed and semi-structured research data sheet was prepared that consisted of classically explained geo-ecological parameters of different types of *Bhumi Desha* (Table. 1).

Table. 1 Collection and Assessment of Geo-ecological parameters on Classical line

Name of the place		Date	Time
Sl No	Parameter	Observation	Remarks
1	Latitude		
2	Longitude		
3	Temperature		
4	Humidity		
5	Type of wind		
6	Mud Type		
7	Water Source and water body		
8	Average Rain Fall Ratio		
9	Stone type		
10	Number and Name of Animals		
11	Number and Name of Birds		
12	Name and Number of tress*		
13	Number of Trees (per 100 sq met)		
14	Types of Crop		
TYPE OF DESHA		JANGALA / ANUPA / SADARANAN	

2. Mean Percentage of Surveyed Vegetation

Table No -2: Mean Percentage of Surveyed Vegetation:

DESHA	Thorny tree	Non-thorny tree	Big leafy tree	Small leafy tree	Juicy plants	Non juicy plants	Thorny shrubs	Non thorny shrubs
Anupa	2%	98%	86%	14%	97%	3%	1%	99%
Jangala	66%	34%	17%	83%	14%	86%	71%	29%
Sadarana	11%	89%	74%	26%	80%	20%	38%	62%

3. Schedule Training for Anthropometric measurements:

Bmk) 224/2018-19

KAHER/BMK/SK/IN-NO-179
12-12-2018


KAHER's

B.M.K. Ayurveda Mahavidyalaya Shahapur Belgaum

Training on SOP of Anthropometric Measurement

Resource Person: Dr. Deepti Bhagewadi

SL NO	SOP	Date	Time	Venue
1	Adult Height measurement	12/12/2018	2-5pm	Physiology Lab/ Physiotherapy Ward
2	Adult Weight measurement	13/12/2018		
3	Adult Skin fold thickness measurement	14/12/2018		
4	Adult Waist/Hip ratio, Abdominal circumference and Mid Arm circumference measurement	15/12/2018		


 PRINCIPAL
 Shri D. N. Sankarawadi
 Ayurved Mahavidyalaya
 A Constituent Unit of KAHER
 Shahapur, BELAGAVI-03.

Photos:

Subscapular and tricep skin fold thickness measurement:



Skin Fold Thickness Measurement of abdomen :



Height measurement :



Weight measurement :



Skin Texture Assessment:



Hair Assessment:



4. CERTIFICATED FROM PHC:



Dr.Vinod Gurav

HOD, Dept of KRIYA SHAREERA (Physiology)

KAHER's SHRI B.M.KANKANWADI MAHAVIDYALAYA,

Belagavi.

To,

Dr. Zuber. Hulekeni
Hudli

Subject: Requisition to allow me to conduct a survey regarding PhD work.

Respected sir,

I Dr Gurav Vinod, PhD scholar from KAHER University Belagavi conducting a survey of Belgaum district. This is in view of my part of PhD thesis work which is entitled, "Determining Geo-Ecological Parameters for Designing *Desha* wise map of Belgaum District And Assessment of *Desha* wise *Prakriti* predominance - A Cross sectional Study", I request you to provide me permission regarding field survey. Kindly do the needful

Thanking You.

Date: 9-3-2019

Place: Belgaum

Yours faithfully,

(Dr Gurav Vinod)

MEDICAL OFFICER
Primary Health Centre Hudal
Tal : Dist: Belgaum-590016

From,

Dr. Vinod Gurav

HOD, Dept of KRIYA SHAREERA (Physiology)

KAHER's SHRI B.M.KANKANWADI MAHAVIDYALAYA,



To, Dr. Prashant Gaikwad
Londa MBBS Medical Officer
PHE

Subject: Requisition to allow me to conduct a survey regarding PhD work.

Respected sir,

I Dr Gurav Vinod, PhD scholar from KAHER University Belagavi conducting a survey of Belgaum district. This is in view of my part of PhD thesis work which is entitled, "Determining Geo-Ecological Parameters for Designing *Desha* wise map of Belgaum District And Assessment of *Desha* wise *Prakriti* predominance - A Cross sectional Study", I request you to provide me permission regarding field survey. Kindly do the needful

Thanking You.

Date: 9-3-2019

Place: Belgaum

Yours faithfully,

(Dr Gurav Vinod)

Dr. PRASHANT A. GAIKWAD
MBBS
Reg No KMC 97416
MEDICAL OFFICER
PRIMARY HEALTH CENTRE
LONDA

Phon. 9591027250

5.

From,

Dr. Vinod Gurav

HOD, Dept of KRIYA SHAREERA (Physiology)

KAHER's SHRI B.M.KANKANWADI MAHAVIDYALAYA,

Belagavi.

To,

Dr. Ramesh Patil MBBS
Ashok Nagar
Khanapur Taluk

Subject: Requisition to allow me to conduct a survey regarding PhD work.

Respected sir,

I Dr Gurav Vinod, PhD scholar from KAHER University Belagavi conducting a survey of Belgaum district. This is in view of my part of PhD thesis work which is entitled, "Determining Geo-Ecological Parameters for Designing *Desha* wise map of Belgaum District And Assessment of *Desha* wise *Prakriti* predominance - A Cross sectional Study", I request you to provide me permission regarding field survey. Kindly do the needful

Thanking You.

Date: 9-3-2019

Place: Belgaum

Yours faithfully,

(Dr Gurav Vinod)

Medical Officer
Primary Health Centre
Ashok Nagar,
Tal:Khanapur, Dist.Belgaum

9448684547

From,

Dr. Vinod Gurav

HOD, Dept of KRIYA SHAREERA (Physiology)

KAHER's SHRI B.M.KANKANWADI MAHAVIDYALAYA,

Belagavi.

To,

Dr. Vijay Tantapur.

Subject: Requisition to allow me to conduct a survey regarding PhD work.


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Thanking You.

Date: 9-3-2019

Place: Belgaum


ಶ್ರೀ ವಿಠಲೇಶ್ವರ ಮಠ
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ಶಿವರಾಜ್ ಮಠದ ಮೇಲೆ
ಶಿವರಾಜ್ ಮಠದ ಮೇಲೆ

Yours faithfully,


(Dr Gurav Vinod)



From,

Dr.Vinod Gurav

HOD, Dept of KRIYA SHAREERA (Physiology)

KAHER's SHRI B.M.KANKANWADI MAHAVIDYALAYA,

Belagavi.

To,
Smt Shikshane T. R
D.D.O
Inchal

Subject: Requisition to allow me to conduct a survey regarding PhD work.

Respected sir,

I Dr Gurav Vinod, PhD scholar from KAHER University Belagavi conducting a survey of Belgaum district. This is in view of my part of PhD thesis work which is entitled, "Determining Geo-Ecological Parameters for Designing *Desha* wise map of Belgaum District And Assessment of *Desha* wise *Prakriti* predominance - A Cross sectional Study", I request you to provide me permission regarding field survey. Kindly do the needful


Thanking You.

Date: 9-3-2019

Place: Belgaum

Yours faithfully,


(Dr Gurav Vinod)

received
15/06/19

ಕರ್ನಾಟಕ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಬೆಲಗಾವಿ,
ಶ್ರೀ ಬಿ.ಎಂ.ಕಾಂಕನವಡಿ ಮಹಾವಿದ್ಯಾಲಯ, ಕೆ.ಎ.ಸಿ.ಸಿ.

[Redacted]

Dr.Vinod Gurav

HOD, Dept of KRIYA SHAREERA (Physiology)

KAHER's SHRI B.M.KANKANWADI MAHAVIDYALAYA,

[Redacted]

To,

Dr. Prakash Wali
Sategar: Subcthav: PTC

Subject: Requisition to allow me to conduct a survey regarding PhD work.

Respected sir,

I Dr Gurav Vinod, PhD scholar from KAHER University Belagavi conducting a survey of Belgaum district. This is in view of my part of PhD thesis work which is entitled, "Determining Geo-Ecological Parameters for Designing *Desha* wise map of Belgaum District And Assessment of *Desha* wise *Prakriti* predominance - A Cross sectional Study", I request you to provide me permission regarding field survey. Kindly do the needful

Thanking You.

Date: 9-3-2019 19/1/2019.

Place: Belgaum

Yours faithfully,


(Dr Gurav Vinod)



ವೃದ್ಧಾಧಿಕಾರಿಗಳು
ಪ್ರಾ.ಆ.ಕೇಂದ್ರ, ಸುಳೇಭಾವಿ
ತಾ.ಜಿ.ಬೆಳಗಾವಿ-591103

Dr.Vinod Gurav
HOD, Dept of KRIYA SHAREERA (Physiology)
KAHER's SHRI B.M.KANKANWADI MAHAVIDYALAYA,
Belagavi.

To,
Dr R.C. Mudalakamath

Subject: Requisition to allow me to conduct a survey regarding PhD work.

Respected sir,


I Dr Gurav Vinod, PhD scholar from KAHER University Belagavi conducting a survey of Belgaum district. This is in view of my part of PhD thesis work which is entitled, "Determining Geo-Ecological Parameters for Designing *Desha* wise map of Belgaum District And Assessment of *Desha* wise *Prakriti* predominance - A Cross sectional Study", I request you to provide me permission regarding field survey. Kindly do the needful

Thanking You.

Date: ~~03-2019~~
7/11/19
Place: Belgaum

Yours faithfully,

(Dr Gurav Vinod)


07/11/19
ಶ್ರೀ. ಕೆ. ಶೇಷ್ ಮುದ್ದೇನಹ
ಶಿಕ್ಷಣ, ಬಿ.ಎ.ಎ.

From,

Dr. Vinod Gurav

HOD, Dept of KRIYA SHAREERA (Physiology)

KAHER's SHRI B.M.KANKANWADI MAHAVIDYALAYA,

Belagavi.

To,

Dr. Sukanya Hanalagi,
Ayush Medical Officer
Belagavi

Subject: Requisition to allow me to conduct a survey regarding PhD work.

Respected sir,

I Dr Gurav Vinod, PhD scholar from KAHER University Belagavi conducting a survey of Belgaum district. This is in view of my part of PhD thesis work which is entitled, "Determining Geo-Ecological Parameters for Designing *Desha* wise map of Belgaum District And Assessment of *Desha* wise *Prakriti* predominance - A Cross sectional Study", I request you to provide me permission regarding field survey. Kindly do the needful

Thanking You.

Date: 9-3-2019

11-10-19

Place: Belgaum

Yours faithfully,


(Dr Gurav Vinod)

Received on 11/10/19.


ಅಧಿಕಾರಿ ವ್ಯಕ್ತಿ, ಕಾಂಕಣವಡಿ,
ಶ್ರೀ. ಬಿ. ಕೆ. ಕಾಂಕಣವಡಿ,
ಬೆಲಗಾವಿ.

5. SURVEY PHOTOS:

Alarwad:



Aste:



Londa:



Khanagov:



Nerse:



Dongaragov:



Godholi:



Devalapur:



Udikeri:



Hudli:



Jamboti:



Inchal:



Kokatnur:



Murgod:



Pantabalekundri:



Compupted devise for survey:



6. PHOTOS OF PLACES/HABITAT VISITED PERSONALLY

1. Name of the place: Manturga Tal: Khanapur Date :4/10/2017

Photos:



2. Name of the place: Shirol Tal: Khanapur Date: 4/10/2017

Photos:



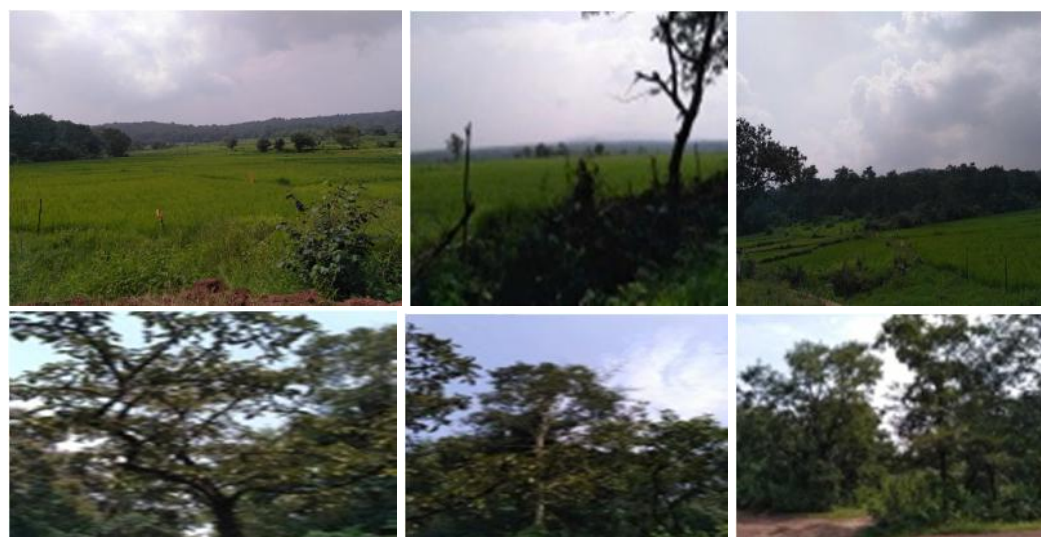
3. Name of the place: Nerase Tal: Khanapur Date: 4/10/2017

Photos:



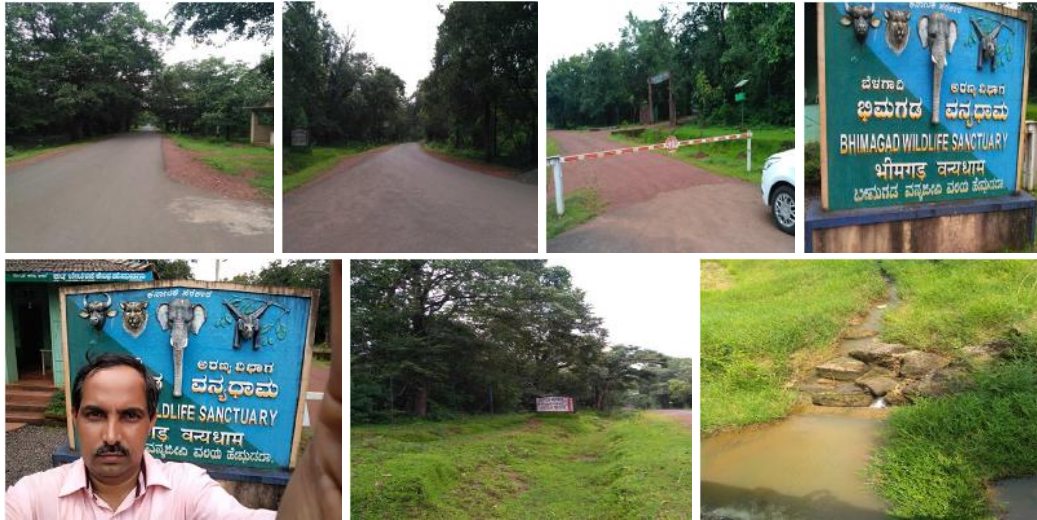
4. Name of the place: Tivoli Tal: Khanapur Date :4/10/2017

Photos:



5. Name of the place: Hemagada/Bhimagad Tal: Khanapur Date: 4/10/2017

Photos:



6. Name of the place: Dongaraganva Tal: Khanapur Date :4/10/2017

Photos:



7. Name of the place: Jamboti Tal: Belgaum Date : 2/7/17

Photos:



8. Name of the place: Murgod Tal: Savadatti Date : 25/6/17

Photos:



9. Name of the place: Mattikoppa Tal: Bailhongal Date : 25/6/17

Photos: 2-12/2017



10. Name of the place: Tumeraguddi Tal: Belgaum Date : 16/7/17

Photos:



11. Name of the place: Ramadurga Tal: Ramadurga Date :1/10/2017

Photos:



12. Name of the place: Katkol Tal: Ramadurga Date :1/10/2017

Photos:



13. Name of the place: Ankalagi Tal: Gokak Date : 16/7/

Photos:



14. Name of the place: Pacchapur Tal: Hukkeri Date : 16/7/17

Photos:



15. Name of the Place: Gokak falls Tal: Gokak Date : 16/7/17

Photo:



16. Name of the place: Chikkodi Tal: Chikkodi Date :12/10/2017

Photos:



17. Name of the place: Yadur Tal: Chikkodi Date :12/10/2017

Photos:



18. Name of the place: Yaragatti Tal: Gokak Date :1/10/2017

Photos:



19. Name of the place: Ghodageri Tal: Hukkeri Date : 16/7/17

Photos:



20. Name of the place: Siraguppi Tal: Chikkodi Date :12/10/2017

Photos:



21. Name of the place: Jainapur Tal: Chikkodi Date :12/10/2017

Photos:



22. Name of the place: Toragall Tal: Ramadurga Date :1/10/2017

Photos:



23. Name of the place: Athani Tal: Athani Date :12/10/2017

Photos:



24. Name of the place: Mangasooli Tal: Athani Date :12/10/2017

Photos:



25. Name of the place: Mejalatti Tal: Chikkodi Date :12/10/2017

Photo:



26. Name of the place: Shahu Nagar

Date : 23/4/17

Photos



27. Name of the place: Khanagonv Tal: Belgaum Date : 16/7/17

Photos:



28. Name of the place: Nesargi Tal: Bailhongal Date : 25/6/17

Photo:



29. Name of the place: Narasingpura Tal: hukkeri Date : 2/8/2017

Photos:



30. Name of the place: Ullagaddi- Khanapur Tal: Hukkeri Date : 15/8/2017

Photos:



31. Name of the place: Ammanagi Tal: Hukkeri Date: 15/8/2017

Photos:



32. Name of the place: Nidasoosi Tal: Hukkeri Date : 15/8/2017

Photos:

