

## Consumption of Arhar/Lentil in Rural and Urban Cities of India

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### Abstract

Lentil/Arhar dal is a part of staple food of Indian Diet, a vast variety of lentil is cultivated in various parts of the country. With the change in eating habits eating wholesome diet is not followed by everyone. Many studies have been conducted earlier but the comparative study on the consumption of lentil in urban and rural area of the different states of India is a matter of research. By determining the average consumption of lentil/arhar in different states of India it becomes easy to increase the yield and manufacturing of the crop in a particular area. Thus, current research puts light on usage of lentil in Madhya Pradesh, Maharashtra, and Karnataka and opens the future perspective to conduct more research on the connection of different varieties of cereals and pulses and average consumption in urban and rural area in a particular state.

**Keywords:** Arhar, Consumption, Karnataka, Lentil, Madhya Pradesh, Maharashtra.

### Introduction

Lentil or Arhar (*Lens esculenta* or *Lens culinaris*), a legume which is edible.. Arhar is cultivated annually and widely called for the shape of seed similar to lens. Arhar is around 40 cms (16 inches) in height, arhar seed are cultivated in multiple pod, mostly having dicot seed. Being a crop providing food, maximum part of global cultivation is provided by India and Canada, cultivating 58% combine of global production. In Indian cuisines, staple and split lentils are used, lentils in split form are called as dal, dal is cooked usually into a thick gravy/curry a combination with roti or rice is usually preferred. Different names in various areas of the globe are utilised for lentil crop [1]–[3]

The variety *Lens* is essential for the subfamily Faboideae coming from blooming family of plant Fabaceae or regularly called as bean or vegetable family, of the request Fabales of realm Plantae. Small genus *Lense* includes developed *L. culinaris* and six wild taxa that are related. Amongst the diverse taxa of wild lentils, *L. orientalis* is viewed as the forebear of the lentil that is developed and lentil is currently commonly named *L. culinaris* subsp. *orientalis*. Along these lines, the *Lens* genus includes six species in seven taxa[4], [5]

- *Lens lamottei*
- *Lens tomentosus*
- *Lens culinaris* subsp. *culinaris*
- *Lens nigricans*
- *Lens odemensis*
- *Lens ervoides*

Hypogeal nature of lentil shows that, cotyledons of the sprouting seed in seed coat stay inside the ground and. Consequently, lentil shows low defence against wind, ice disintegration or bug assault. The plant is a diploid, yearly, semi erect, shaggy spine of erect, or spreading and minimized development & regularly shifts in the range of 30 to 50 centimeters (12 to 20 inches) tallness. Lentil has numerous bristly branch and Lentils stem is thin and rakish. The rachis bear 10 to 15 handouts in nearly five to eight sets. The leaves are substitute, long, insensitive shape, straight and colour is yellowish green to dull pale green blue shade. As a rule, the leaves on

the upper side are transformed into rings, while mucronate leaves are found on the lower side. In rare cases, many stipule are found and that too in very less number. The blossom, one to four, are little, pink, white, purple, light blue or pale purple in shading. Blossom emerge from the axil of leaf, on a slim footstalk nearly similar to the leaf. The units are elongated, 1.5 centimetre long, marginally expanded. Typically, two seeds are present in all of them, about 0.5 centimetre in measurement, trademark focal point shape. The seed may likewise be spotted and mottled. The few developed assortments of lentil vary in shade of the leaves, size, bristliness, blossoms, and seeds. Lentil plant can pollinate itself. Blooming start from the lower bud and progressively move in upward direction, purported acropetal blossoming. Around fourteen days are required for entire blossoms to widen on one branch. Toward the end of the day and after the launch of the blossom on the third day, they totally close and the shading start to blur. Following 3 to 4 days, the settings of the unit happen. Lentil is considered as one of the most widely used pulse in Indian sub-continent, but, with the change in eating habits and a clear picture of demand and supply to the cultivator, wholesale marketer and everyone involved in the food chain is not known. Thus there comes a need to conduct a study to find out the demand of lentil in urban and rural population of different states of India [6]–[8]

## **REVIEW OF LITERATURE**

R. Amarowicz conducted a study in which Phenolic compounds were extracted from lentil seeds. The impure concentrates were added to a Sephadex LH-20 section. Division 1, comprising of sugars and low-sub-atomic weight phenolics, was eluted from the segment by ethanol. Division 2, consisted of tannins which were used in  $(\text{CH}_3)_2\text{CO}$  water as an efficient stage. Phenolic concentrates that were found in the impure concentrates and the substitutes of impure concentrates showed cancer preventing properties and antiradical working when recovered from the studies, the complete cell reinforcement movement strategy the complete cell reinforcement movement strategy, the extremist runimaging action measure, and a decreasing force assessment. The most effective results were shown in case of prevailing phenolics in the concentrate[1]

Ning Wang conducted a study of four assortments of lentil, each having two degree of protein were selected for the examination, roughly protein content ranging from 225.7 to 311.7 g kg<sup>-1</sup> were selected for the study. Results obtained after the study shows that assortment process and rough protein content effectively affected dehulling productivity (DE), powder making, seed breaking, and elimination of the structure. Dehulled seeds showed high protein content, high starch, phytic corrosive content, stachyrose and verbascose content, however lower trypsin inhibitor activity (TIA), sucrose content, tannin content, sucrose content and raffinose content in comparison to crude seed content.[9]

K.M Singh conducted a study in which traditional beats were considered as an important component in forming the structure in the Indigo-Gangetic Plains. They have accepted the importance as supply of protein and effective to fix Nitrogen present in the environment and effectively improve richness of the soil. In last few decades, 1960s and mid 1970s, a big region under heartbeats in the Indigo-Gangetic Plain (IGP) was replaced by high yielding rice (*oryza sativa*) and wheat (*tritium aestivum*). Lentil cultivation in India has been an important since long and it is one of the important rabi crop of India. Till now, India is the biggest manufacturer of lentil crop globally. The new strategy in cultivation of rice and wheat significantly changed horticulture in India. Indian subcontinent has a standing of being a significant part on the planet's heartbeat situation. The current article attempts to examination the current situation of lentil, its uses, and imperatives to expanding creation of lentil in India[10]

### *Research Question:*

What is the average consumption of lentil/Arhar in urban and rural area of M.P., Maharashtra and Karnataka?

## **METHODOLOGY**

### *Design:*

A Questionnaire form is distributed in wholesale market of different cities of Madhya Pradesh, Maharashtra, and Karnataka. The questionnaire form shown in Table 1 was distributed amongst all wholesale grain dealers of different cities of Madhya Pradesh, Maharashtra, and Karnataka and the questionnaire form filled by all wholesale dealers was analysed and further wholesale dealers primarily dealing with lentil/arhar selling are considered for further analysis and depending upon the data entered by the wholesale dealer's further study was conducted.

**Table 1: Shows the questionnaire form distributed amongst the wholesale dealers of grains in different cities of Madhya Pradesh, Maharashtra, and Karnataka.**

NAME:	
AGE:	
OCCUPATION:	
How long you are doing wholesale dealing of grains? :	2 to 6 years:  6 years or more:
What all cereals you sell? :	Wheat:  Arhar/Lentil:  Rice:  Barley:
What quantity of Arhar/Lentil you sell monthly? :	1,000 lakh Kg:  More than 1,000 lakh Kg:
In which locality Arhar is demanded the most? :	

The questionnaire form distributed amongst the wholesale dealers of different locations of Madhya Pradesh, Maharashtra, and Karnataka and an average result of different locations of a state is considered as a result.

The data is collected on the basis of three income group categories:

1. Low income group: Low income group includes population residing in slum area. Slum area is mostly a small area where a large number of population is residing. Low income group people residing in slum area are generally devoid of proper food required for health and growth. Proper sanitization and education about healthy food is not available for low income population. Balanced diet and why eating a balance diet is significant is not known to people of low income group. Low income group is considered as population of rural Madhya Pradesh, Maharashtra, and Karnataka.

2. Middle income group: Middle income group includes people residing in flats, societies, flats and societies have better sanitization in comparison to. Middle income group resides mostly in less closely packed area. Middle income group women stays where relatively less number of population is residing. Middle income group people are not devoid of proper food required for health and growth. Middle income group people know the importance of balanced diet. Middle income group is considered as tier two cities of M.P and Karnataka mostly considered as urban cities.

3. High income group: High income group include people residing in bungalows, big societies, and in area having very good sanitization. People belonging to high income group resides in big area where very less number of population is residing. High income group people know the importance of balanced diet and effect of eating healthy food. The significance of growth and healthy eating is known to high income group people.

Considered as population of highly crowded cities like Bengaluru, Mysore, Pune, Thane, Navi Mumbai, and Mumbai Suburbans.

*Data Collection:*

The questionnaire form distributed amongst the wholesale grain dealers of different locations of Madhya Pradesh, Maharashtra, and Karnataka and grain dealers who were mainly dealing with Arhar primarily were considered for the survey and an average result of different locations of a state is considered as the result of that state, a total data of 10 dealers was considered for the analysis. Table 2 Shows the data of the average consumption of Arhar in different cities of Madhya Pradesh. Table 3: Shows the data of the average consumption of Arhar in different cities of Maharashtra. Table 4: Shows the data of the average consumption of Arhar in different cities of Karnataka, and Figure 1, 2, 3, 4, 5, and 6 shows the results of total number of people out of ten eating Arhar dal/lentil on a regular basis in rural and urban area of M.P, Maharashtra, and Karnataka.

**Table 2: Shows the Data of the Average Consumption of Arhar in Different Cities of Madhya Pradesh**

	Average consumption of arhar in Rural area of Madhya Pradesh	Average consumption of arhar in Urban area of Madhya Pradesh
Results obtained when asked people about their eating habit of Arhar (out of 10)	8.32	6.61

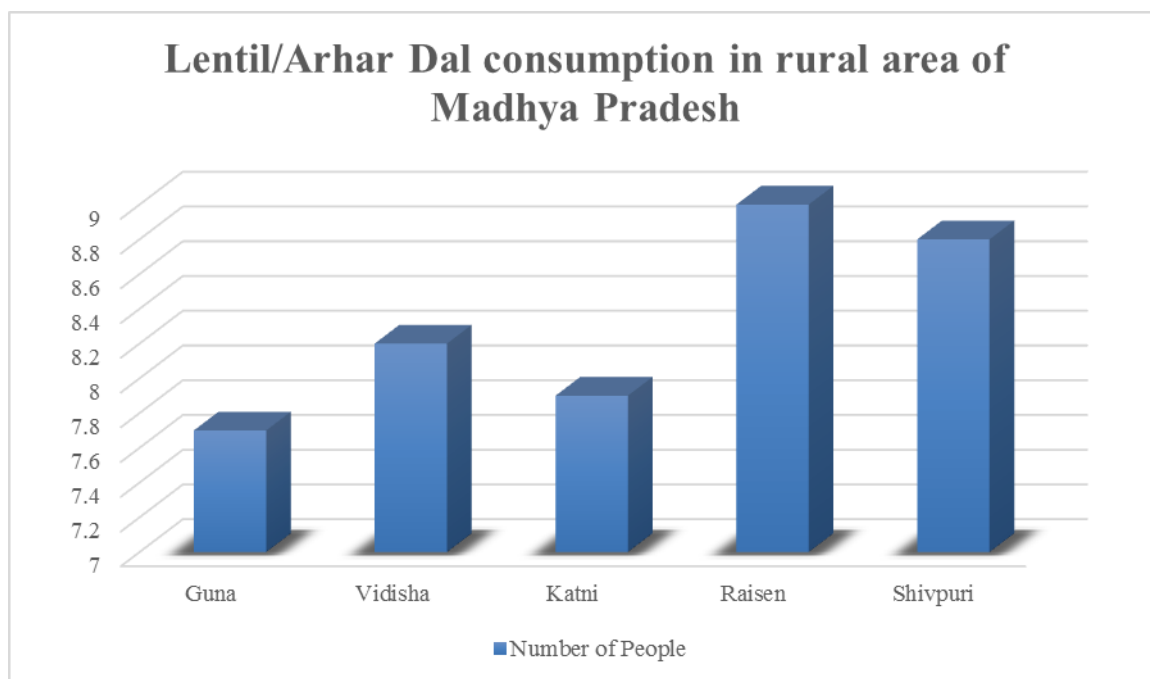
**Table 3: Shows the Data of the Average Consumption of Arhar in Different Cities of Maharashtra**

	Average consumption of arhar in Rural area of Maharashtra	Average consumption of arhar in Urban area of Maharashtra
Results obtained when asked people about their eating habit of Arhar (out of 10)	6.61	6.55

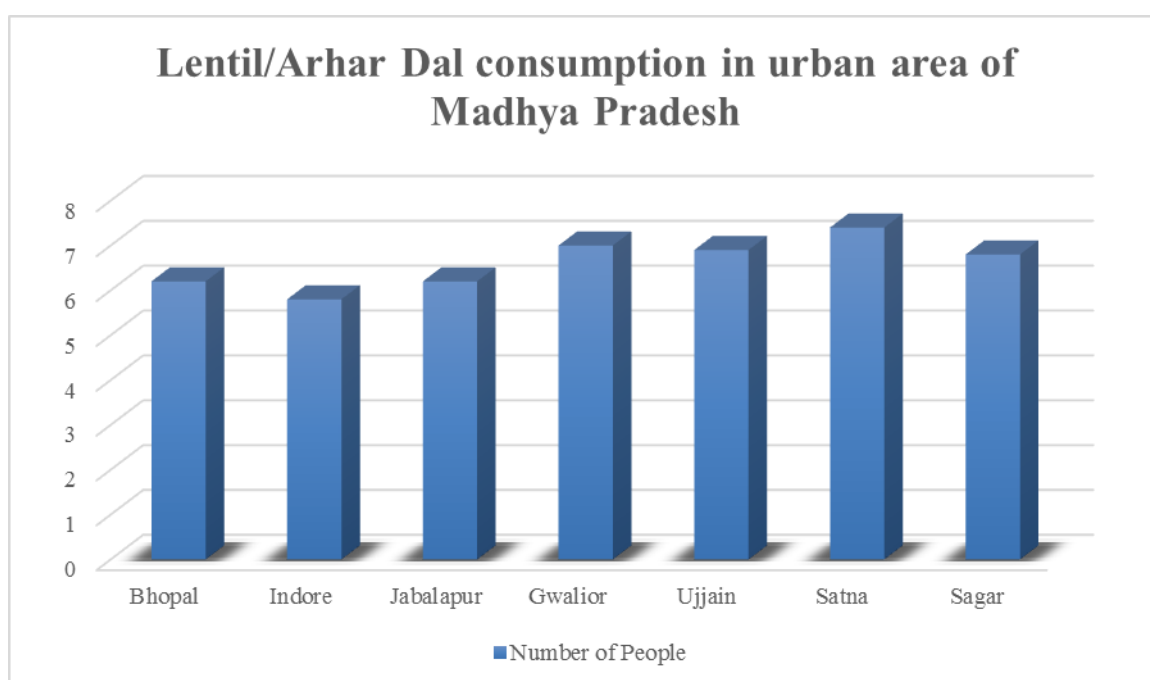
**Table 4: Shows the Data of the Average Consumption of Arhar in Different Cities of Karnataka**

	Average consumption of arhar in Rural area of Karnataka	Average consumption of arhar in Urban area of Karnataka
Results obtained when asked people about their eating habit of Arhar (out of 10)	6.57	8.06

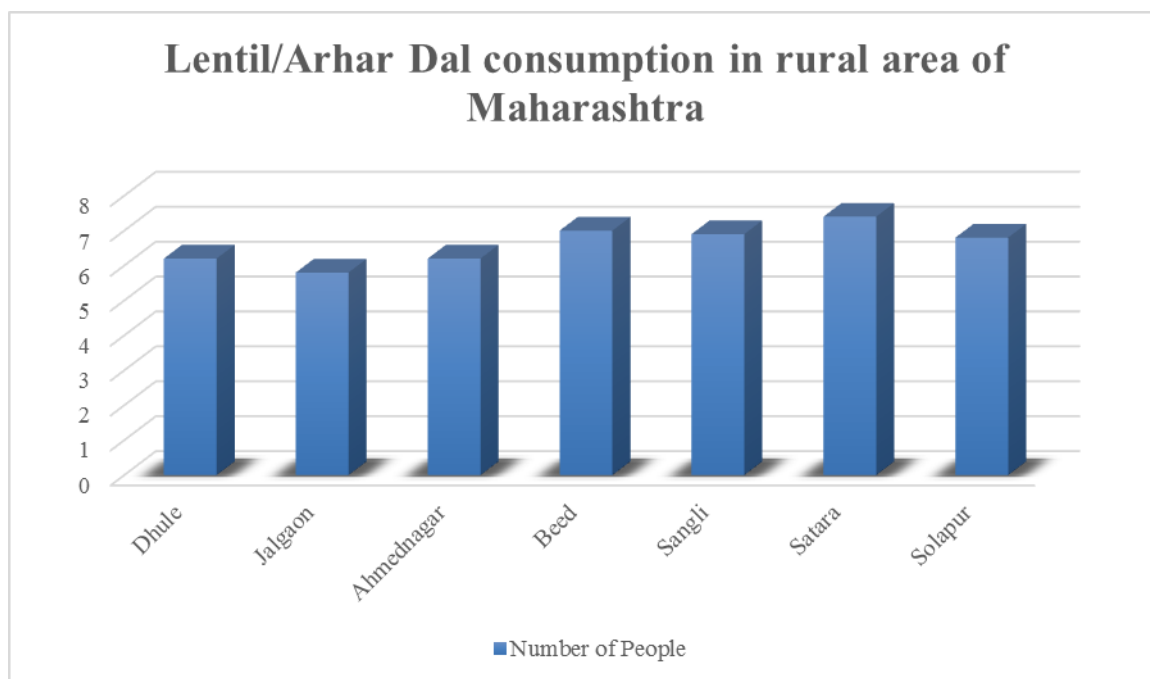
*Data Analysis:*



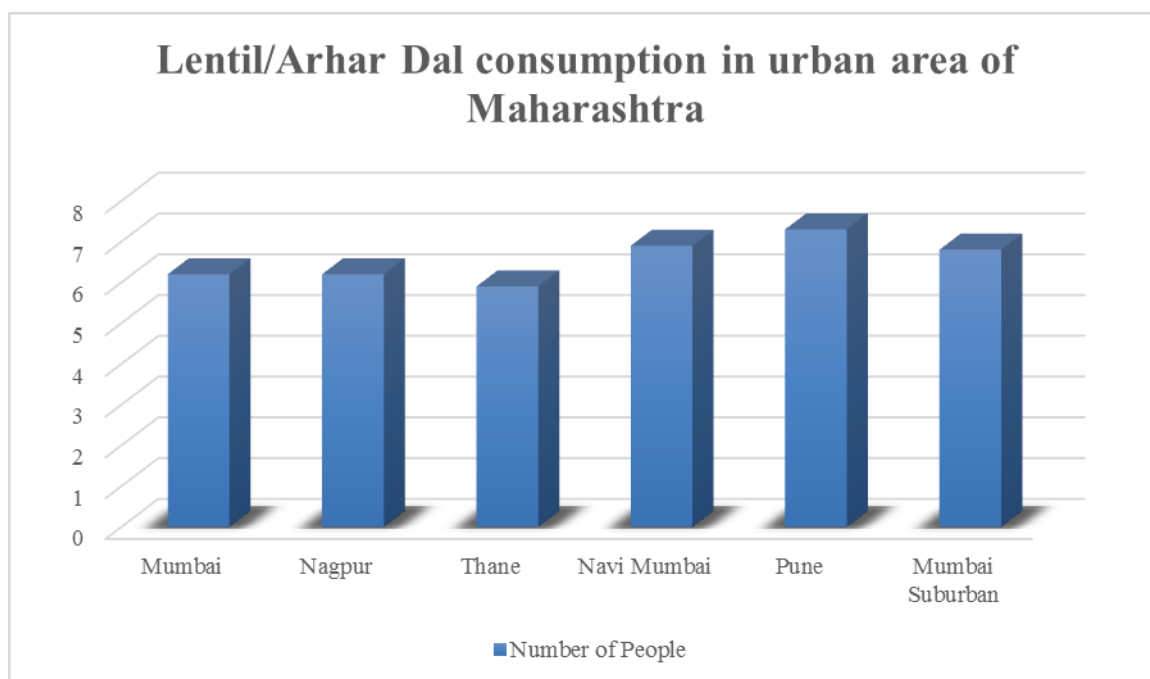
**Figure 1: Shows the Results of Total Number of People Out of Ten Eating Arhar Dal/Lentil on a Regular Basis in Rural Area of Madhya Pradesh**



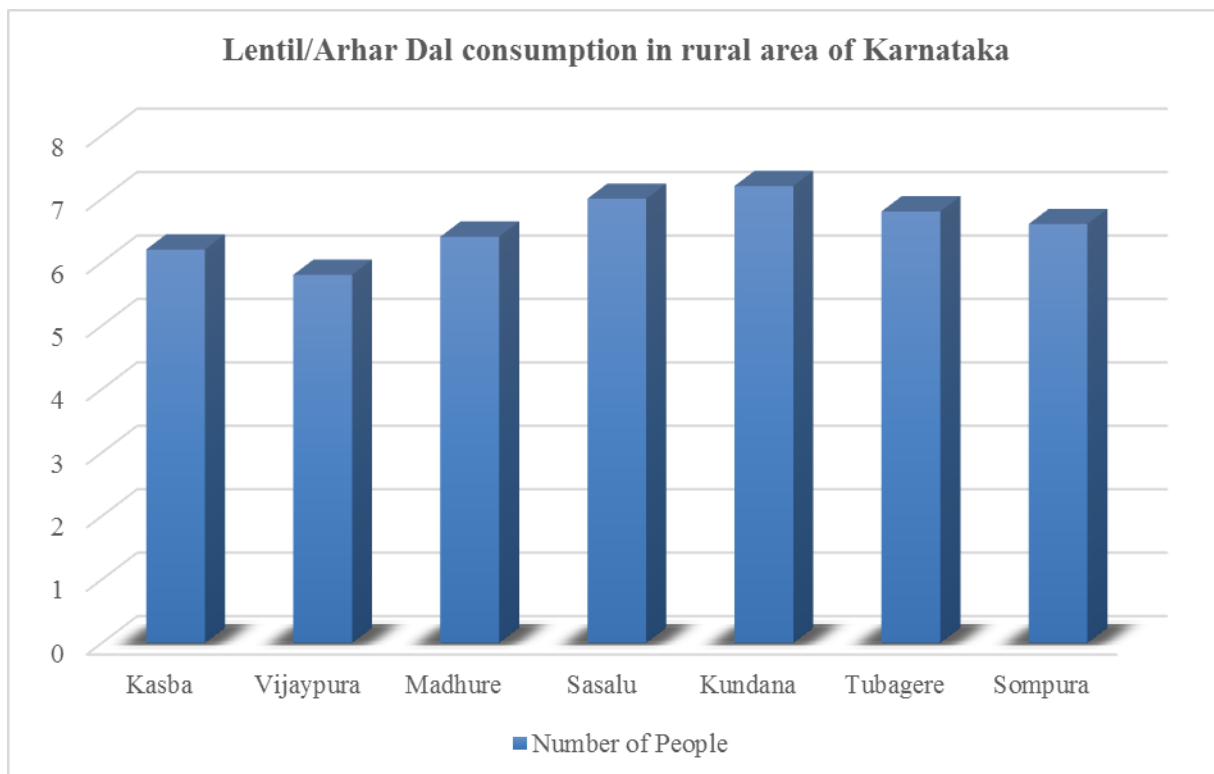
**Figure 2: : Shows the Results of Total Number of People Out of Ten Eating Arhar Dal/Lentil on A Regular Basis in Urban Area of Madhya Pradesh, Bhopal, Indore, Jabalpur, Gwalior, Ujjain, Satna, and Sagar.**



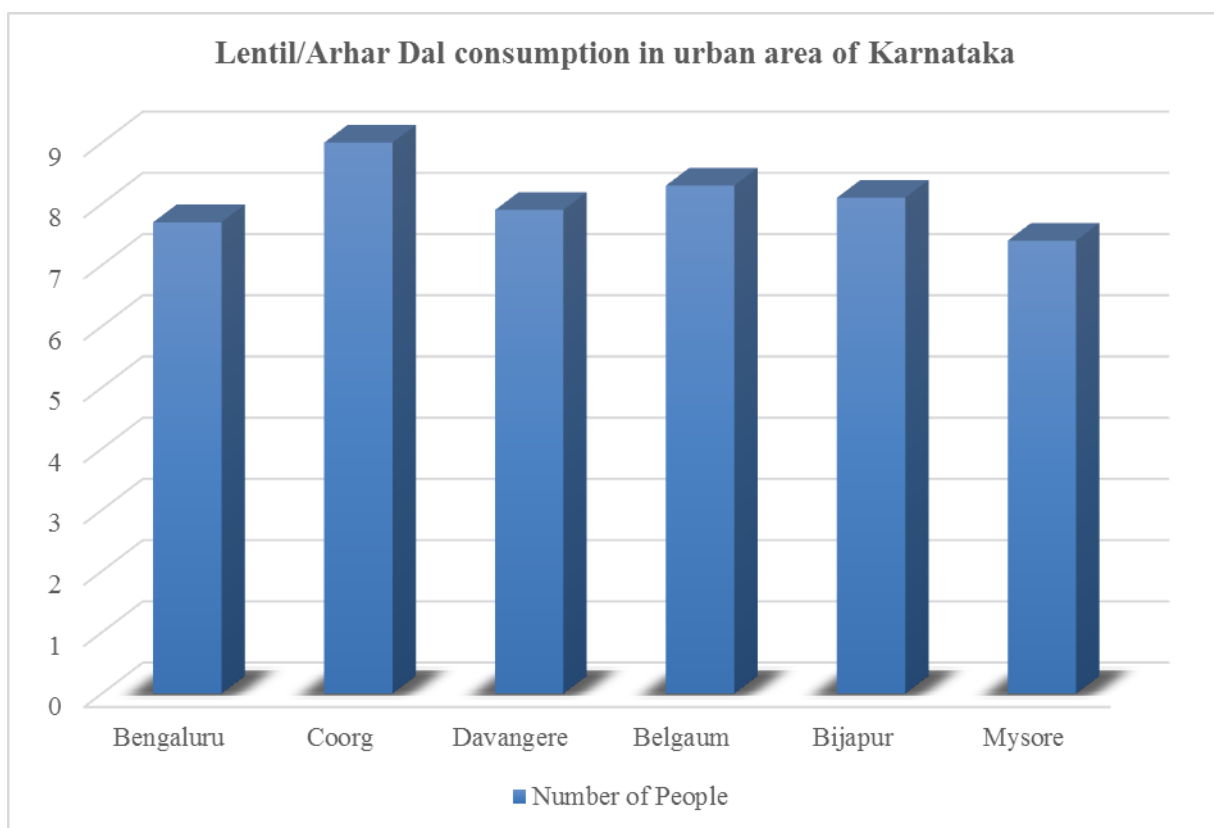
**Figure 3: Shows the Results of Total Number of People Out of Ten Eating Arhar Dal/Lentil on a Regular Basis in Rural Area of Maharashtra**



**Figure 4: Shows the Results of Total Number of People Out of Ten Eating Arhar Dal/Lentil on a Regular Basis in Urban Area of Maharashtra**



**Figure 5: Shows the Results of Total Number of People Out of Ten Eating Arhar Dal/Lentil on a Regular Basis in Rural Area of Karnataka**



**Figure 6: Shows the Results of Total Number of People out of Ten Eating Arhar Dal/Lentil on A Regular Basis in Urban area of Karnataka**

## RESULT AND DISCUSSION

The results of the study conducted to find out the consumption of lentil/Arhar in rural area of M.P is observed as the consumption Guna as 7.7%, Vidhisha as 8.2%, Katni as 7.9%, Raisen as 9%, Shivpuri as 8.8% and the consumption of lentil/Arhar in urban area of M.P is observed as Bhopal as 6.2%, Indore 5.8%, Jabalpur 6.2%, Gwalior as 7% Ujjain as 6.9%, Satna as 7.4%, Sagar as 6.8%. The consumption of lentil/Arhar in rural area of Maharashtra is observed as Dhule 6.2%, Jalgaon 5.8%, Ahmednagar 6.2%, Beed 7%, Sangli 6.9%, Satara 7.4%, and Solapur 6.8%. The consumption of lentil/Arhar in urban area of Maharashtra is Mumbai 6.2%, Nagpur 6.2%, Thane as 5.9%, Navi Mumbai as 6.9%, Pune as 7.3% Mumbai suburban 6.8%. The consumption of lentil/Arhar in rural area of Karnataka as Kasba 6.2%, Vijayapura 5.8%, Madhure 6.4%, Sasalu 7%, Kundana 7.2%, Tubagere 6.8%, and Sompura 6.6%. The consumption of lentil/Arhar in urban area of Karnataka is observed as Bengaluru 7.7%, Coorg 9%, Davangiri 7.9%, Belgaum 8.3%, Bijapur 8.1%, Mysore 7.4%. The average consumption of lentil/Arhar in rural M.P was observed to be 8.32%, The average consumption of lentil/Arhar in urban M.P was observed to be 6.6%, the average consumption of lentil/Arhar in rural Maharashtra was observed to be 6.6%, the average consumption of lentil/Arhar in urban Maharashtra was observed to be 6.5%, the average consumption of lentil/Arhar in rural Karnataka was observed to be 6.6%, the average consumption of lentil/Arhar in urban Karnataka was observed to be 8.0%

## CONCLUSION

Lentil are both a food crop and a forage/cover crop. Along with cereals, lentil make a well-balanced meal and therefore the combination is preferred by all nutritionists as a significant ingredient for balanced diets. In India, lentil/arhar is one of the most commonly used pulses, being a prime source of protein especially for all vegetarian people. In regions where lentil is cultivated, fresh young pods are consumed as a vegetable in traditional recipes such as *sambar*. Whole lentil are popularly known as *arhar dal* in Hindi.

The results of the study conducted to analyse the consumption of lentil/Arhar in rural cities of Madhya Pradesh, Maharashtra and Karnataka. Thus, it is observed as the average consumption of lentil/Arhar in rural M.P was observed to be 8.32% and shows that in rural M.P eating wholesome diet and following a balanced diet is prevalent. The average consumption of lentil/Arhar in urban M.P was observed to be 6.6% shows that due to changing lifestyle choice and eating choice urban M.P population showed less demand of lentil, the average consumption of lentil/Arhar in rural Maharashtra was observed to be 6.6%, the average consumption of lentil/Arhar in urban Maharashtra was observed to be 6.5%, a similar pattern of lentil/arhar consumption was observed in the developed state of the Maharashtra showed a similar pattern of not eating a balanced diet in both urban and rural population. The average consumption of lentil/Arhar in rural Karnataka was observed to be 6.6% showed that rural Karnataka population was more prone in eating junk food and relatively less wholesome balanced diet, the average consumption of lentil/Arhar in urban Karnataka was observed to be 8.0% clearly shows that the urban population of Karnataka showed more demand of lentil thus showed more interest in eating a wholesome balanced diet. With the change in eating pattern across all age group of population in India number people are consuming junk food which is eventually affecting the demand and supply chain of traditional food. Traditional food has been a primary choice of all age group since ages, but now, since the demand is highly affected the traders, investors, farmers, and everyone who is involved in dealing with the cultivation of traditional food products does not get a clear picture of the demand of Arhar required in different states of India. Thus, current study puts light in finding the use of arhar in different states of India and opens future prospects to conduct the study on other grains and pulses also.

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