



# **Theme:**

# **Responsible Food Consumption and Production**



## PRODUCT DEVELOPMENT AND SENSORY EVALUATION OF JACKFRUIT FLOUR INCORPORATED RECIPES

Venugopal Shonima, Jain Pragma, Anajwala Mansi and Iyer Uma

Department of Foods and Nutrition, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat  
mansianajwala2000@gmail.com

### Introduction

- Jackfruit (*Artocarpus heterophyllus*) can be considered to be a superfood.
- The fruit is a storehouse of phytochemicals and has been reported to have immense potential in the management of numerous disease conditions.
- However, the fruit is perishable and cannot be stored for long, as a result of which every year, a considerable amount of jackfruit goes waste due to lack of proper postharvest knowledge.

### Aim

The purpose of the study was to analyze the nutrient, antioxidant and phytochemical profile of jackfruit flour and explore the utility of jackfruit flour in food product development.

### Methodology

- Nutrient, antioxidant and phytochemical analysis of jackfruit flour was done using standard methods.
- Fifteen recipes (Methi Thepla, Handvo, Muthiya, Besan Cheela, Masala Khakhra, Thalipeeth, Khaman, Masala Bati, Uttapam, Upma, Namakpara, Nachos, Aloo Tikki, Tomato Soup and Savoury Raab) incorporating jackfruit flour (JF) at three different levels i.e., 10g, 15g and 20g were developed.
- The recipes were subjected to sensory evaluation using composite scoring and the hedonic rating scale.

- Jackfruit flour was found to contain good amounts of protein (12.7g/100g), crude fibre (9.9g/100g), iron (8.17mg/100g) and calcium (74.96mg/100g).
- It has moderate amounts of carbohydrates (64.53g/100g) and 33.2g/100g of Vitamin C.
- Jackfruit flour showed antioxidant activity in DPPH and FRAP assays.
- The total phenolic and total flavonoid content was found to be 263.8 mg/100g and 3.82mg QE/100g respectively.
- Sensory evaluation results revealed that jackfruit flour could be effectively incorporated in different recipes with good acceptability at all levels of incorporation.

### Conclusion

The acceptability of jackfruit flour incorporated recipes will help in promoting consumption of the fruit as well as its flour which could help reduce the wastage of jackfruit and thus establish more sustainable patterns of consumption.

### Results

#### RECIPE PERCENT LIKES AND DISLIKES BASED ON HEDONIC RATING SCALE

Recipe	Control Sample		10g JF		15g JF		20g JF	
	Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike
Besan Cheela	100	0	96.6	3.3	86.6	3.3	93.3	3.3
Handva	96.6	0	100	0	83.3	10	86.6	13.3
Khaman	100	0	100	0	100	0	66.6	10
Masala Bati	100	0	93.3	0	96.6	3.3	96.6	3.3
Masala Khakhra	100	0	100	0	100	0	96.67	0
Methi Thepla	90	10	86.6	3.3	96.6	0	96.6	0
Muthiya	96.6	0	96.6	0	93.3	3.3	90	0
Nachos	100	0	100	0	93.3	0	93.3	3.3
Namakpara	100	0	100	0	93.3	3.3	93.3	3.3
Thalipeeth	100	0	100	0	93.3	3.3	93.3	3.3
Upma	100	0	96.6	0	83.3	3.3	86.6	6.6
Uttapam	96.6	3.3	90	0	100	0	80	0
Aloo Tikki	100	0	100	0	100	0	80	0
Tomato Soup	100	0	96.6	0	80	10	66.6	23.3
Savoury Raab	93.3	3.3	100	0	90	6.67	96.6	3.3

### References

Molla M. M., Nasrin T. A. A., Islam M. N. and Bhuyan M. A. J. 2008. Preparation and Packaging of Jackfruit Chips. Int. J. Sustain. Crop Prod. 3(6): 41-47



# Effect Of Supplementation Of Antioxidant Powders On Food Consumption Pattern Among Postmenopausal Women

**Kushwaha Shalini<sup>1</sup>** and Chawla Paramjit<sup>2</sup>

<sup>1</sup>Discipline of Nutritional Sciences, School of Continuing Education, IGNOU, New Delhi, email: drkushwaha.shalini@gmail.com

<sup>2</sup>Department of Foods and Nutrition, Punjab Agricultural University, Ludhiana

## Introduction

- Menopause is associated with a wide variety of physical and psychological symptoms which influences food consumption among postmenopausal women.
- The menopause is a particularly important time in a woman's life.
- It is an aspect of human aging and a useful predictive risk marker of a variety of aging-related diseases and health problems.

## Aim

Study was conducted to assess food consumption pattern of postmenopausal women supplemented with antioxidant powders.

## Methodology

Ninety postmenopausal women of 45-55 yrs were selected and equally divided into three groups viz. group I (control), group II and group III. Subjects of group II and III were supplemented with antioxidant powder I (drumstick leaves powder-DLP- 7g/day) and antioxidant powder II (amaranth leaves powder- ALP- 9g/day) in the recipes in daily diet for three months. Information pertaining to food preferences, food avoidances were recorded. Dietary intake of subjects was recorded for three consecutive days by "24 hours recall method", using standardized containers, both before and after the experimental period. Cooked amount of food were converted to raw amounts.

## Results

Data regarding daily food intake of the subjects revealed decrease in intake of cereals and pulses by 2.44, 7.66 and 6.75 per cent and 0.65, 3.87 and 0.68 per cent in group I, group II and group III respectively after supplementation. Daily intake of other vegetables and milk and milk products increased significantly by 10.83, 9.22, 6.68 per cent and 9.12, 6.13, 6.34 per cent respectively after supplementation. It was observed that daily intake of fats and oils and sugar and jaggery decreased significantly by 13.03, 7.27, 17.29 per cent and 6.30, 4.00, 2.59 per cent in group I, group II and group III after supplementation.

Decrease in mean daily intake of cereals, pulses, roots and tubers, fats and oils and sugar and jaggery after supplementation may be due to supplementation of antioxidant powders which are rich source of fibre and provide satiety value. Mean daily intake of other vegetables, fruits and milk and milk products increased after supplementation.

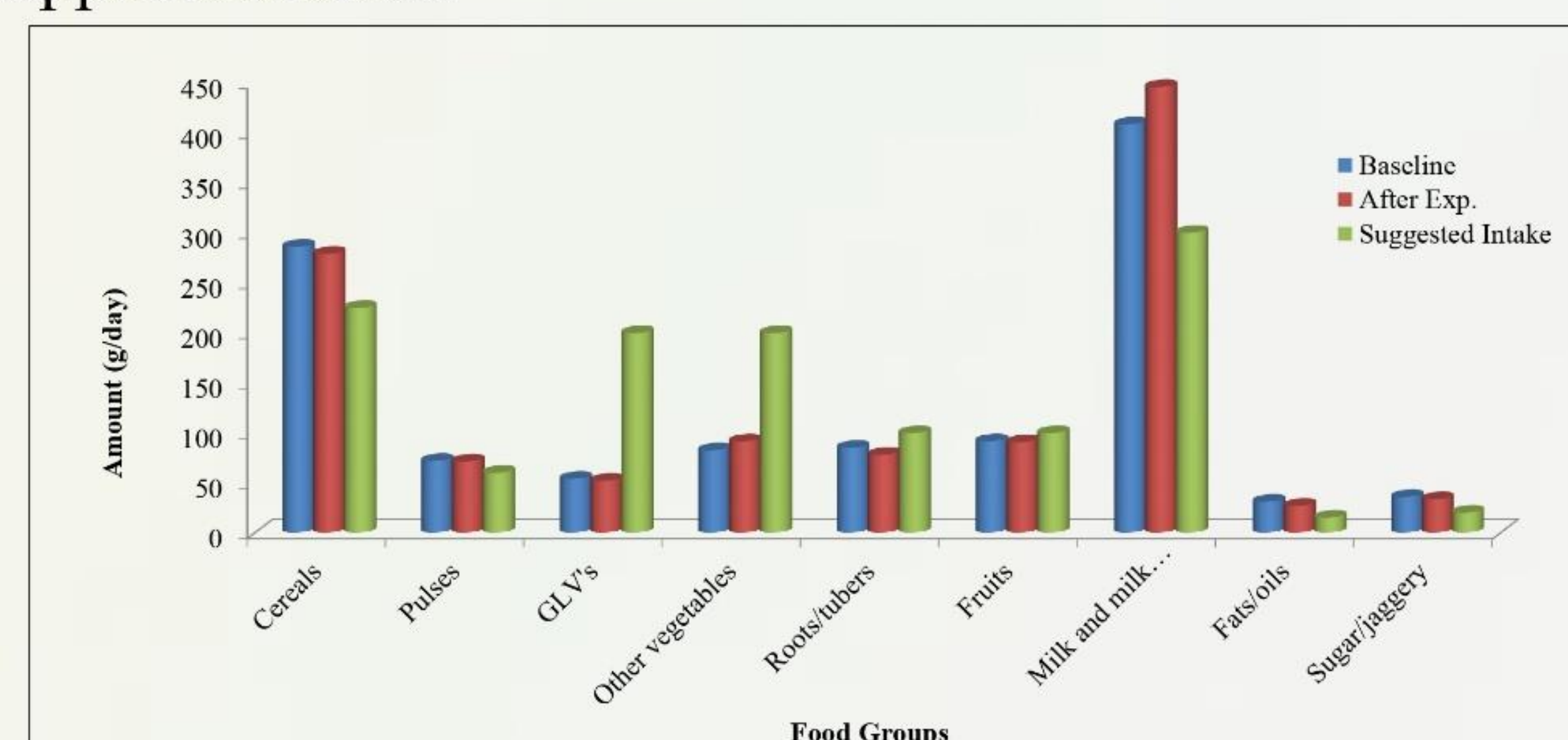


Fig: Mean Food intake in Control

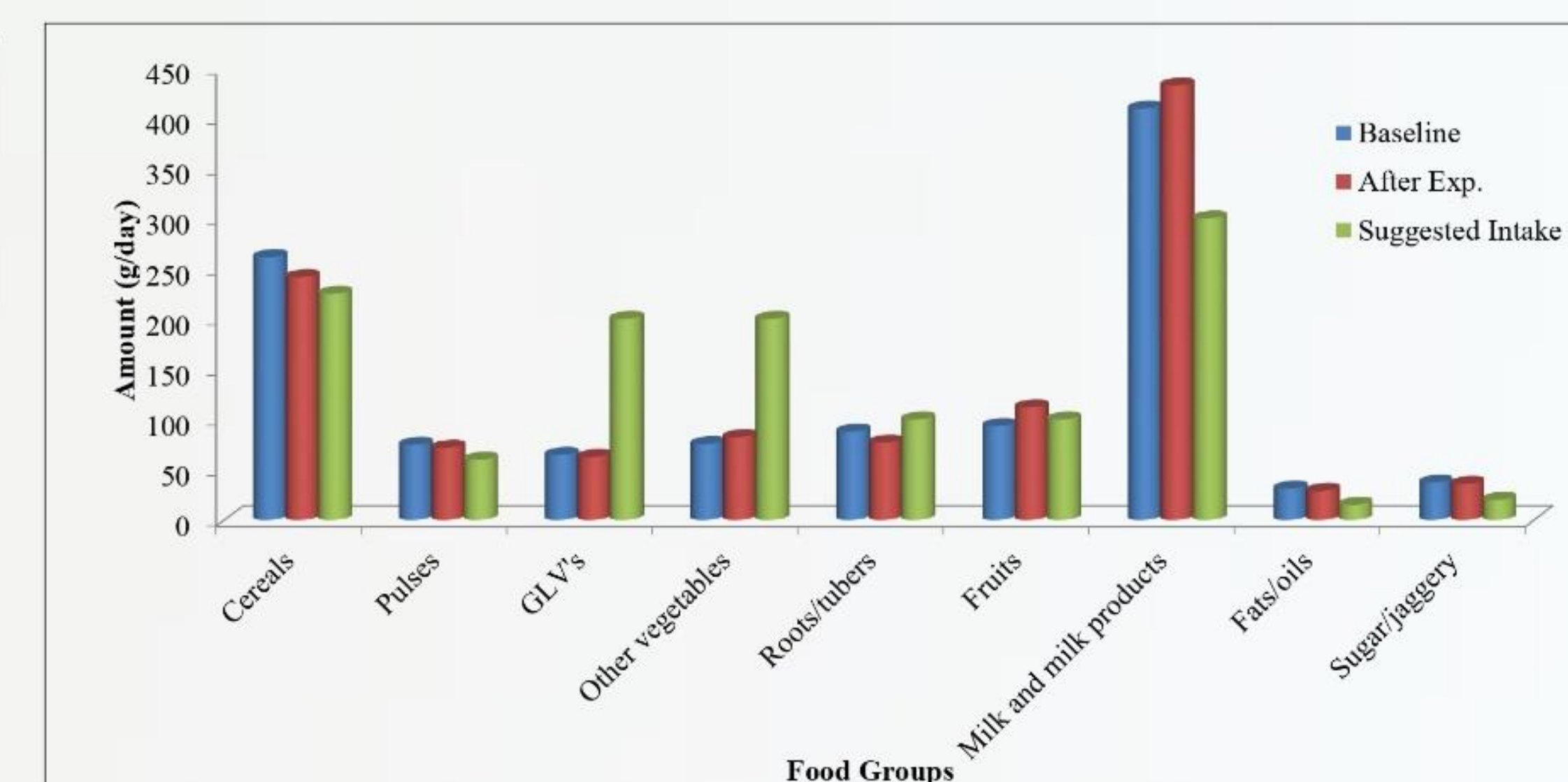


Fig: Mean Food intake in Group I

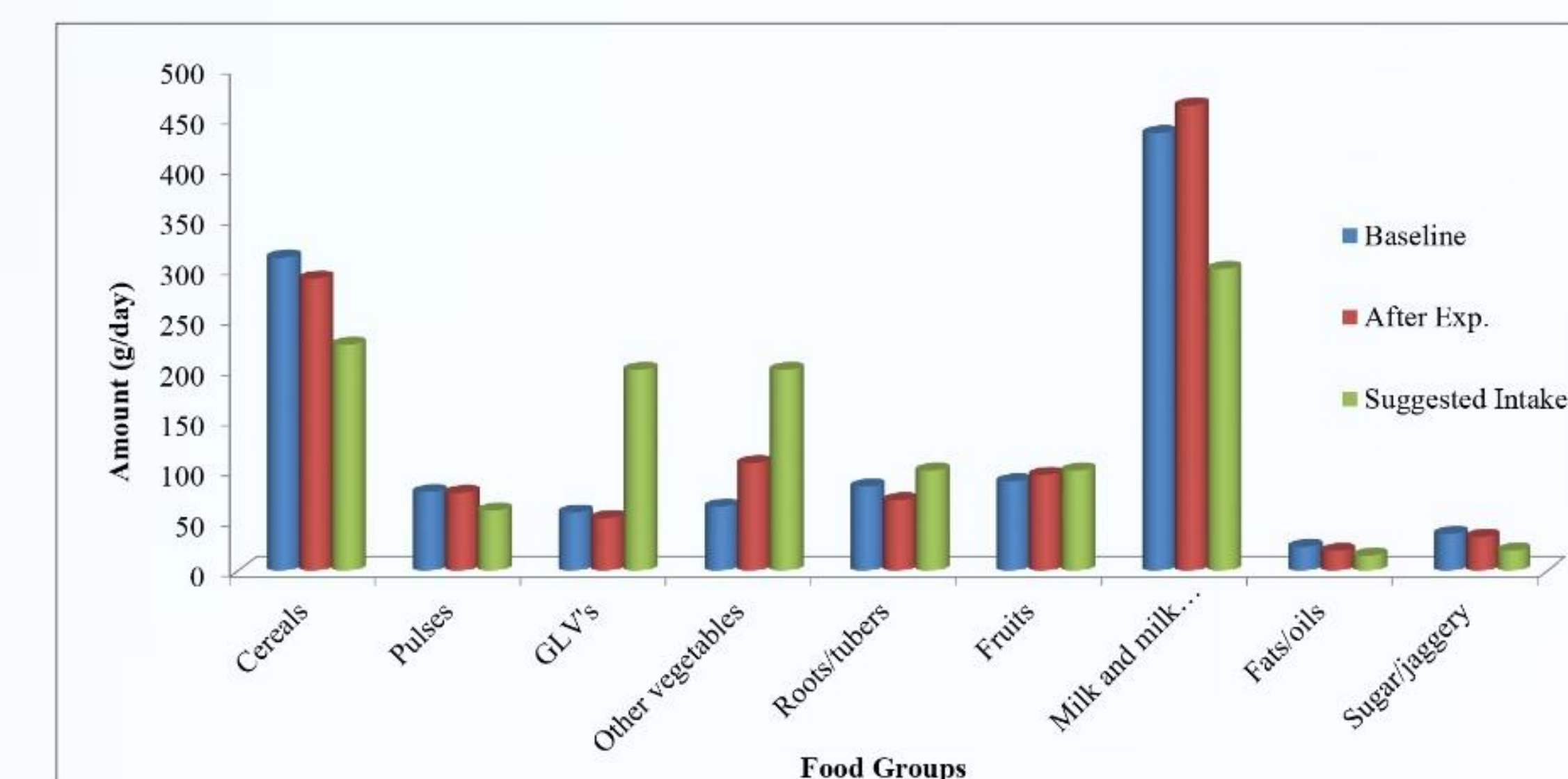


Fig: Mean Food intake in Group II

## Conclusion

Study concludes that supplementation of Drumstick leaves powder (DLP) and Amaranth leaves powder (ALP) helps to reduce the consumption of calorie dense foods and improves antioxidant status of postmenopausal women.

## References

- Raghuram T C, Pasricha S and Sharma R D (2007) Diet and diabetes. ICMR, Hyderabad.
- Ghafoorunissa and Krishnamurthy (2007) Fatty acid composition and food items. Diet and Heart Diseases: pp 32-34.
- Dilis V and Trichopoulou A (2009) Nutritional and health properties of pulses. Med J Nutr Metabol 1(3):149-57.

## Acknowledgement

I am thankful to authorities of Punjab Agricultural University, Ludhiana and all the faculty members of College of Home Science for their support and guidance.



## A Survey On Consumer Awareness About Shelf-Life Dates Of Packaged Food And Its Role In Food Wastage

**Ghaisas Madhura**

Dept. of Food science and Nutrition, Dr. BMN College of Home Science (Autonomous), Mumbai  
msgmadhura@gmail.com

### Introduction

- Population and its ever-growing demand for quality and nutritious food is one of the major concerns worldwide.
- Food wastage issue is amongst the 17 Sustainable Development Goals defined by the United Nations in the 2030 Agenda for Sustainable Development.<sup>[1]</sup>
- Various studies have shown a sizable food wastage on account of misunderstanding and lack of awareness about the various shelf-life dates on food packages.

### Aim

Assessing the level of consumer awareness about shelf-life dates on food packages, and to put forth suggestions on simplifying the terms such as expiry/use-by/best before date to help in reducing unwarranted wastage of packaged food caused by lack of awareness and misunderstanding.

### Methodology

- Data from 99 participants through online questionnaire like demographic data, inclination to consume food post the shelf-life dates, perception about the meaning of terms (Expiry / Use By / Best Before) was collected.
- Respondents' food consumption preferences and perception of the different terminologies was correlated with their age, educational level and economic status.

### Results

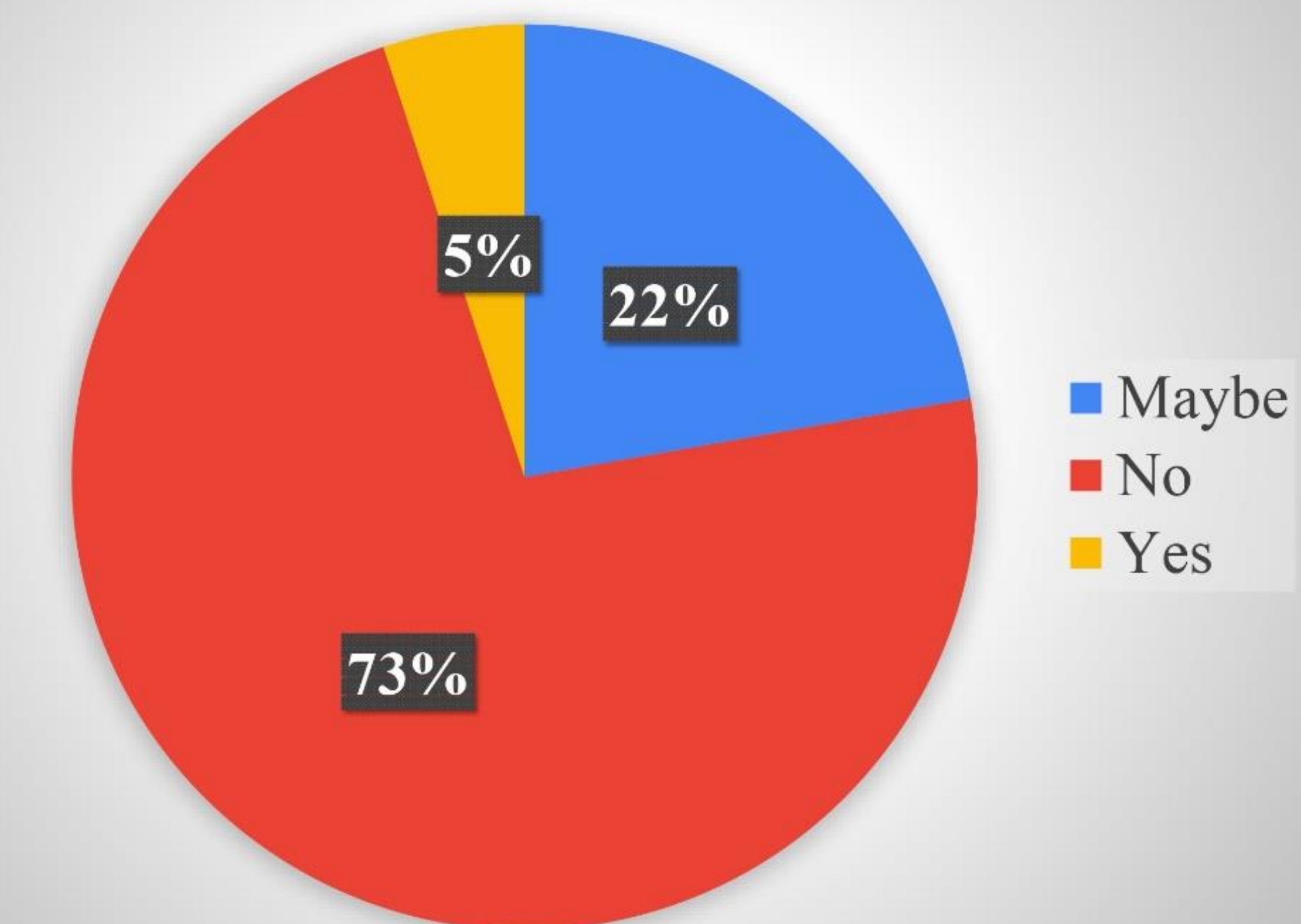
The analysis of the responses reveal that around 73% of the respondents are reluctant to use packaged food after the “Best Before”, “Expiry Date” or “Use By Date” mentioned on the food package. It is observed that reluctance of consumer’s to consume food post the shelf-life dates are not dependent on respondent’s age group, educational background and economic status.

The survey show that, only around 62% of the respondents understand the correct meaning of the label “Best Before Date”, which is, “the food can be safe for consumption after the date even though there might be some alteration in the quality like taste, flavor and appearance as that compared to the original product.” Rest 38% of the respondents find no difference between the terms “Expiry Date” / “Use By Date” and “Best Before Date”.

The results suggest that discarding food safe to be consumed after the shelf-life dates on food packages and consumer’s misconception regarding the term “Best Before Date” may lead to unnecessary wastage of food.

A informative e-flyer was shared with the participants of the survey, post it’s completion, explaining the meaning of different terminologies used for food shelf-life dates in lucid language. This would help them to understand the appropriate meaning of the terms and would prevent food wastage.

**Respondents' Inclination to Use Packaged Food Post "Best Before" Date**



### Conclusion

Though results have shown growing awareness about the food shelf life dates, there is a scope for spreading it further through simplification of terms used, so that the inclination of using food post these dates in appropriate cases increases. This would reduce unwarranted wastage of food and help feed the growing world population.

### References

1. SDG Goal 12 (Responsible Consumption and Production) - Sustainable Development Goals, SDG Indicator 12.3.1 Global food loss index. Food and Agriculture Organization of the United Nations. <https://www.fao.org/sustainable-development-goals/indicators/1231/en/> (Accessed on 15th December, 2022).

### Acknowledgement

I would like to thank the Principal and Dept. of Food Science & Nutrition, Dr. BMN College of Home Science for their cooperation in this project. I am also grateful to the participant of survey for helping me in completion of this project.



## Ethnographic community based study to understand concept of plate waste- A step towards achieving sustainable goals

Ansari Sabat\* and Nambiar Vanisha\*\*

\*PhD Scholar (sabatansari1702@gmail.com) and \*\*Professor

Department of Foods and Nutrition, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara -390002 Gujarat

### Introduction

Understanding resilient dietary practices from communities using ethnographic approaches may provide solutions to achieve the sustainable development goals.

### Aim

To understand the dietary consumption patterns and religious concepts on food wastage of the *Alavi Bohras*, an Ismaili Shia Muslim close-knit community, with a typical food pattern.

### Methodology

A cross-sectional study on the *Alavi Bohras*, which is a micro-minority community with 8000 global members of which 6500 reside in Vadodara city, Gujarat, Western India.

Ethnographic methods included personal interviews of women from 125 households, key informant interviews (n=18), narratives (n=18), focus group discussion, conducted with members of the food committee- *at-taiyebaat* committee, (n=18), in-depth interview of the spiritual head of *Alavi Bohra*, and senior leaders of the community (n=6); and direct on-the-spot observations of the community kitchens for 10 days of *Moharram*.

### Results

The concept of eating from *thaal* (a large steel round plate) is practiced daily by 100% of families. One plate is shared by 5-6 members of a family, who sit and eat together in a circular manner on the food mat –*sifrah* thus no plate waste was recorded. This practice strengthened dietary diversity, gender equity, as more variety can be offered in each *thaal*.



Figure 1 : *Thaal*

*Jamaat –khana* (n=4) food management understands the quantity and portion size need for raw ingredients daily for 6500 community members. Excess food from the community kitchen is given to the ‘*Yateemkhana*’- orphanage.

### Conclusion

Centralized community kitchens and family meals eaten together in *thaal*, can reduce plate waste, enhanced food security (SDG-1,2), improves good health and wellbeing (SDG-3), reduces gender inequities (SDG-5), and reduce inequalities (SDG-10) and lead to sustainable cities and communities (SGD-11).

Figure 2: Food cooked in bulk in community kitchens



This concept of *Jamaat –khana / community kitchen* is a novel practice of community for zero wastage of food. Irrespective of the day-to-day meals or the meals during the festivities of Ramadan, Muharram or occasions, such as a wedding; food is cooked in 3-4 community kitchens, to cater to their entire Alavi Bohras community of the city.

Figure 3: Community people eating food from thaal

