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Study on the challenges of women small scale entrepreneurs in the business of traditional snacks (Appalu) of Telangana state

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Abstract

Survey was conducted on 30 women small business owners dealing with traditional Telangana foods by interview method with a structured questionnaire to study the difficulties they encountered with product preparation, packaging, storage, and quality. Traditional snacks like Appalu, Sakinalu, Garelu, Arisalu, Bundiladdoo, and Palliladdoo were the most popular and best-selling items, with demand peaking during festivals. Majority (50%) of the entrepreneurs have self-outlets, 46.6% of the entrepreneurs started their enterprise to be self-independent and only 6.66% of the entrepreneurs were handling business in partnership. Majority of the entrepreneurs (66.6%) were using rice flour, groundnuts and sesame as major raw ingredients. 83.33% of the entrepreneurs were using sunflower oil and 16.66% of entrepreneurs were using palm oil as frying medium. Majority of the entrepreneurs (60%) were using polyethylene covers and 40% of the entrepreneurs were using LDPE (Low Density polyethylene) for packaging of Appalu. Challenges faced with regard to the quality were rancidity (53.3%), changes in flavour (23.3%), and soginess (23.3%). According to the survey, entrepreneurs are expecting mechanization to reduce drudgery because they are having difficulty preparing products manually, which causes physical exhaustion and back pain. They need proper packaging technology because they are having problems with breakage and storage. Many businesses prepare their products every day and sell them because they lack storage facilities, which hinders their ability to do business. Along with mechanization, local government policies and incentives are anticipated by entrepreneurs as potential means of fostering the expansion of their businesses.

Keywords: LDPE, HDPE, Rancidity, drudgery

Introduction

Traditional foods are culinary delights that have been passed down through generations, shaped by the cultural, historical, and geographical contexts of a particular region or community. The preparation, ingredients, and serving of traditional foods are deeply rooted in the customs, rituals, and values of a community. Telangana, a state in southern India, has a rich culinary heritage, and its traditional snacks are known for their unique flavors and ingredients. Traditional foods present significant opportunities for small-scale entrepreneurs, offering a platform for economic growth, community development, and the preservation of culinary heritage.

"Appalu" are a widely consumed and favored traditional deep-fried snack, is made of rice flour, peanuts, Chanadal, cowpea dal with an addition of other ingredients which

includes sesame seeds, spices such as green chilli paste/ chilli powder, curry leaves, spring onion leaves, garlic and salt.

According to Asokapandian *et al.* (2020) ^[2] frying increases the food's palatability, extends its shelf life, and allows for the fabrication of a variety of dishes, which have distinctive sensory qualities that make them highly appealing to customers.

The fried foods present their own set of challenges. Extended storage typically results in fried food quality degradation. Loss of texture, fat rancidity, and off-odors/off-flavors are the three main quality changes that occur in crackers over an extended period of time (Cauvain and Young, 2019) ^[5]. However, depending on the packing, moisture from the surrounding air migrates into the product, whose moisture content will alter over the course of its shelf

life (Lekjing and Venkatachalam, 2019)^[11].

Deep fried snack industries faces the greatest problem of preserving the sensory qualities over an extended period of time since it will be exposed to uncontrollable external variables during storage that encourage the deterioration process. Enhancing the product with appropriate packaging will help the small scale entrepreneurs to grow, prevent losses and retain business in all seasons (Bahram *et al.*, 2014)^[3].

The entire world is entangled in the web of globalization. Foreign market potential must be expanded. Attractive packaging and display, increased shelf-life, and improved microbiological safety will all help to increase the popularity of traditional foods. To ensure the survival of the Indian Food Industry, it is critical to include an element of novelty while minimizing production costs. This is a problem that the traditional food industry is currently facing (Bose *et al.*, 2023)^[4].

Maintaining the quality of fried food products depends heavily on cooking medium used and packaging materials. With the enlargement of the product marketing radius it has become essential to increase the shelf life of the product, better process control and development of better packaging profile through integration of the use of traditional and modern materials. (Vasile, C., and Baican, M. (2021)^[13].

Materials and Methods

Research design

The survey approach was used to investigate the challenges that female entrepreneurs faced when producing, packing, storing, and selling their products.

Location of study: Alwal, Secunderabad, Rajendranagar of Telangana state were chosen to undertake a survey on traditional Telangana snacks, particularly Appalu.

Sampling procedure

A survey was done in Hyderabad among 30 small-scale businesses involved in the business of traditional Telangana foods. Purposive random selection was used to choose these 30 entrepreneurs. Survey was conducted among women small scale business enterprises of traditional Telangana foods, to study the difficulties they encountered with product preparation, packaging, storage, and quality. Additionally, details about the proportion of ingredients, preparation technique, frying medium, storage environment, addition of preservatives and additives, packaging method, and packaging material used which impact the shelf life of fried foods were documented. Also quality criteria preferred by consumers were recorded.

Statistical analysis

All of the results are statistically analyzed to determine the

importance of the data obtained using percentages.

Results and Discussion

The results of survey are presented as follows: General information, Preparation, Packaging, Storage, and Quality aspects.

Purposive random sampling was used to select 30 small scale women entrepreneurs dealing with traditional Telangana foods from the areas of Secunderabad, Alwal, and Rajendranagar. Appalu, sakinalu, laddoo, ariselu, garijelu, and other products were sold by the women entrepreneurs. Women launched small scale businesses to generate money since they had inexpensive start-up costs, local demand, and can be run from home. 50% of entrepreneurs have their own businesses, 43.3% of entrepreneurs work from home, and just 6.66% of entrepreneurs work in partnership. 46.6% of entrepreneurs established their businesses to be self-sufficient, while only 40% had attended training programs. 50% of the entrepreneurs were registered with the government, while the other half had no registration (Table 1)

Table 1: General information

Information	Percentage (%)
Type of enterprise	
Self-outlet	50
Home scale	43.3
Partnership	6.66
Motivation to start enterprise	
Self-independence	46.66
Interest	23.33
To support family	30
Participation in training programmes	
Yes	40
No	60
Registration under government	
Yes	50
No	50

Preparation: Due to cultural preferences and economic constraints, raw materials for traditional snacks might differ greatly from area to region. The ratio of ingredients in a product is typically crucial for its quality, taste, texture, and overall characteristics. The importance of the ratio depends on various factors such as the type of product, its intended use, consumer preferences, nutritional requirements, and manufacturing processes (Durgadevi, M., & Shetty, P. H. 2014)^[8]. Each business' raw components for making appalu were unique. As raw materials, 66.6% of entrepreneurs used rice flour, groundnuts, and sesame, 16.6% used rice flour, chana dal, and 13.3% used rice flour, cowpea, and sesame. Only rice flour was used by 3.35% of entrepreneurs to make Appalu (Table 2)

Table 2: Proportion of ingredients used by entrepreneurs

Rice flour (%)	Groundnuts/ Chanadal / Cowpea dal (%)	Sesame (%)	Percentage (%)
55	36	9	36.66
65	30	5	30
75	20	5	23.33
80	15	5	10

The most commonly used method of preparation by majority of entrepreneurs (100%) for making appalu is as described in Figure 1.

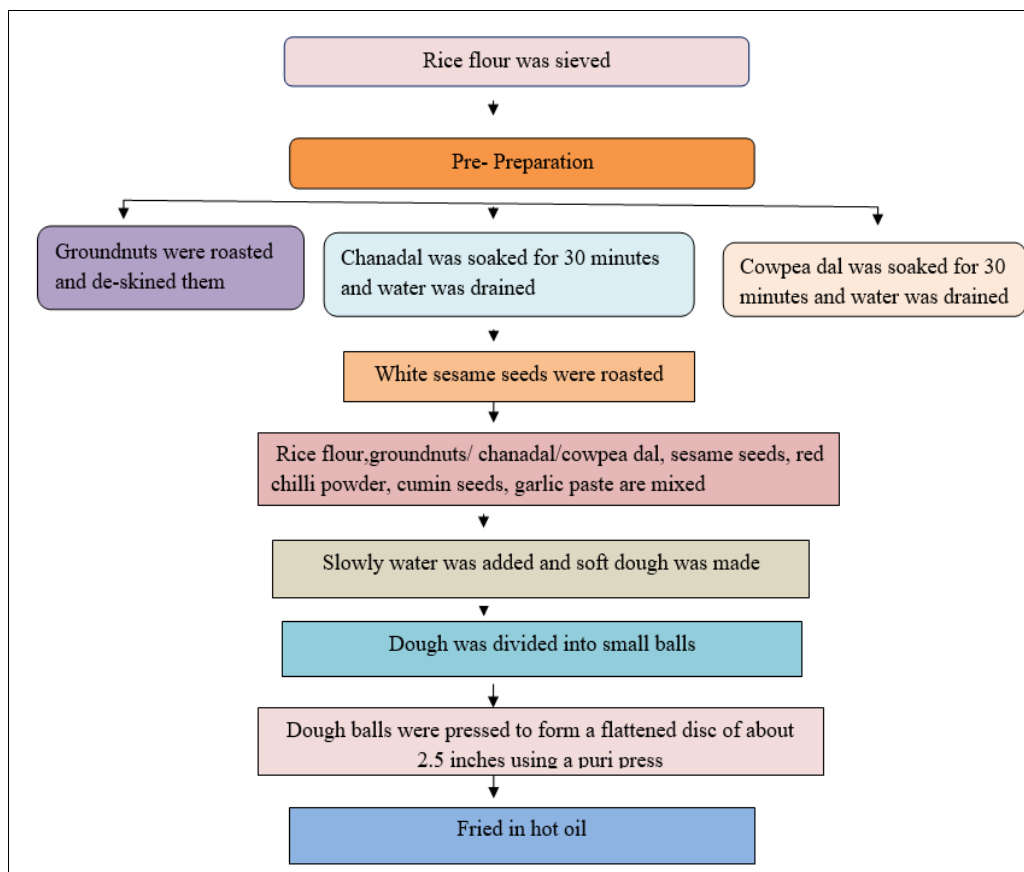


Fig 1: Schematic diagram for preparation of Appalu

Pre-preparation equipment is essential for running a traditional snack business efficiently and for maintaining consistent quality. Pre-preparation equipment enables to scale up production without a significant increase in labor costs, making it cost-effective. 96.67% of the entrepreneurs have flourmills. 66.6% of the entrepreneurs have the equipment capacity of 5-10 kg /hr. Majority of entrepreneurs (96.6%) were using puri press to make Appalu (Table 3).

Table 3: Pre-Preparation equipment and capacity

Parameters	Percentage (%)
Pre-preparation equipment	
Household grinder	3.33
Flour mill	96.67
Capacity of equipment	
Less than 5 kg /hr	16.6
5-10 kg/hr	66.66
10-15kg/hr	16.6
Usage of Puri press	
Yes	96.66
No	3.33

Production

In order to produce traditional snacks that fulfill market demand and are of high quality, consistency, and efficiency, labor and time are essential (Cahyono *et al.*, 2023) [5]. In addition to enabling flexibility to shifting market conditions, skilled and well-managed labor can assist maintain the

authenticity of traditional foods. In order to satisfy customer expectations, snacks must be made effectively and delivered on time. This is ensured by effective time management. 56.66% of the business owners could produce one to ten kilograms of Appalu every day. 70% of the business owners were able to produce one kilogram of Appalu in less than an hour (Table 4).

Table 4: Production of Appalu

Parameters	Percentage (%)
Quantity per day	
1-10kg	56.66
11-20kg	26.67
21-30kg	16.67
Manpower for 10kgappalu	
1-5	90
6-10	10
Time required for 1kg Appalu	
Less than 1hr	70
1hr-2hrs	30

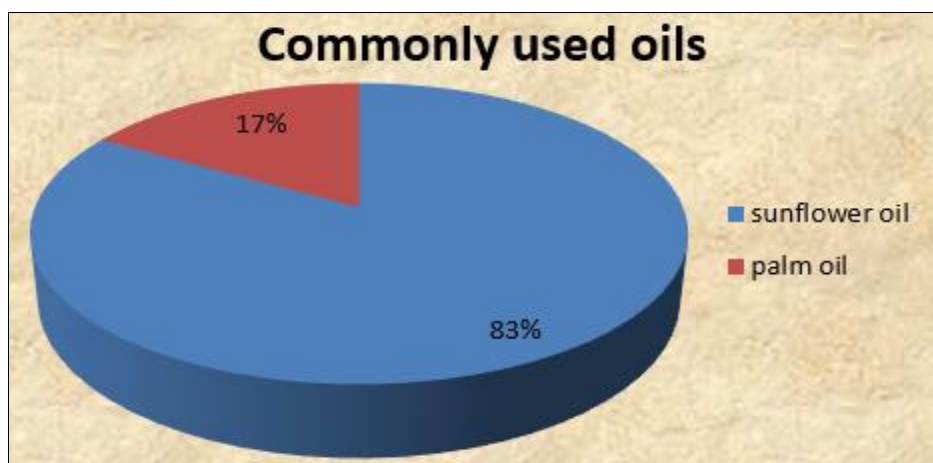
The thickness and diameter of traditional snacks are important factors that influence their taste, texture, cooking process, presentation, cultural significance, and consumer appeal. Manufacturers carefully consider these factors to produce snacks that align with consumer expectations and cultural traditions. 60% of the entrepreneurs maintained the diameter of dough ball ranging from 2- 2.5 cm and 86.6% of the entrepreneurs maintained the thickness of 1mm (Table 5).

Table 5: Diameter and thickness of Appalu

Parameters	Percentage (%)
Diameter of dough ball	
1.5 -2 cm	20
2- 2.5 cm	60
2.5 - 3cm	20
Thickness of Appalu	
Less than 1mm	6.66
1mm	86.66
More than 1mm	6.66

The shelf life of fried foods can be greatly affected by the selection of frying medium. The shelf life of fried food can be extended by using a stable frying medium, which can

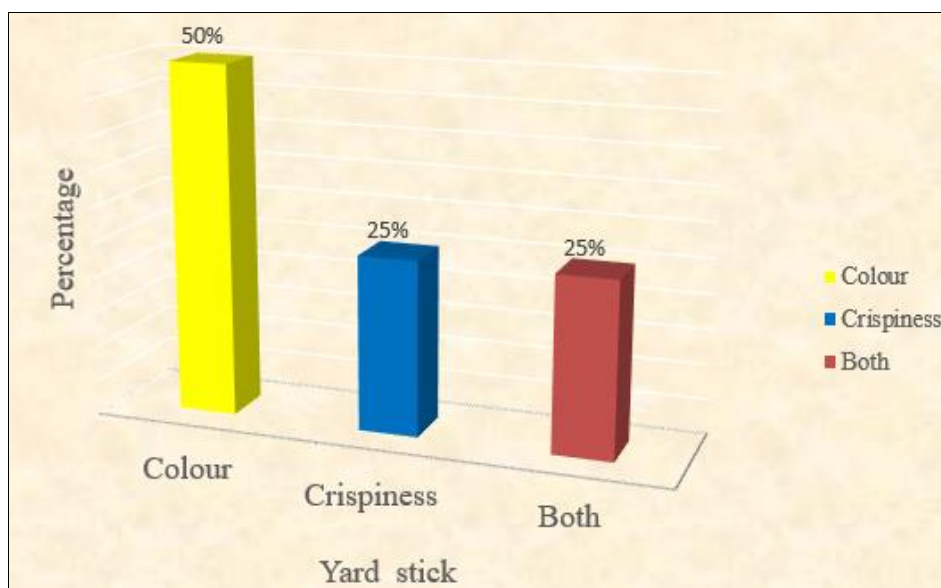
delay the onset of rancidity and off flavors (Dash *et al.*, 2022) [7]. As seen in Figure 2, 83.33% of business owners utilized sunflower oil, while just 16.66% used palm oil.

**Fig 2:** Commonly used oils by entrepreneurs

Quality yardsticks to check completion of frying:

A "yardstick" refers to a set of criteria or indicators that helps to determine whether a product has been properly fried or not. 50% of the entrepreneurs determine based on

the colour of the appalu while 25% of the entrepreneurs check crispiness to determine whether it is fried or not and 25% of the entrepreneurs check both colour and crispiness (Figure 3).

**Fig 3:** Yardstick to check frying

Packaging

Packaging plays a pivotal role in ensuring the quality, freshness, and appeal of fried foods. Fried foods are

particularly vulnerable to moisture absorption and loss of crispiness, which can occur rapidly without proper packaging. Effective packaging solutions create a barrier

against external elements such as air and moisture, preserving the texture and taste of fried products over time (Gaikwad *et al.*, 2019) ^[10]. 60% of the entrepreneurs were using polyethylene covers and 40% of the entrepreneurs were using LDPE (Low Density polyethylene) for packaging of appalu. 66.6% of the entrepreneurs perform sealing manually and 33.3% of entrepreneurs were using sealing machine (Table 6). None of the entrepreneur's were using nitrogen gas flushing. Nitrogen flushing helps extend the shelf life of fried foods by displacing oxygen in the packaging, which reduces oxidative reactions that cause food spoilage. Oxygen can lead to the degradation of oils and fats in fried foods, causing them to become rancid and lose their flavor, texture, and nutritional value. Nitrogen creates an oxygen-free environment that slows down these reactions and helps maintain the quality of the fried foods, ultimately prolonging their freshness and shelf life (Agarwal *et al.*, 2018) ^[11].

Table 6: Packaging of appalu

Parameters	Percentage (%)
Type of packaging material	
LDPE	20%
Polyethylene covers	80%
Packaging method	
Ordinary packaging	100%
Nitrogen gas flushing	0%
Method of sealing	
Manually	66.66%
With sealing machine	33.33%
Minimum size of packaging	
250g	100%
Cost of packaging per unit	
Less than Rs.2	93.3%
Rs. 3-4	6.66%

Storage

The majority of entrepreneurs (63.33%) were using closed

containers, followed by airtight containers (16.66%), open containers (10%), and bamboo baskets (10%) (Table 7). Storing fried foods in open containers can cause faster moisture loss, making them less crispy and less appetizing. Furthermore, exposure to air can cause the oils in fried foods to go rancid, reducing their flavor and quality. It also raises the risk of contamination and bacterial growth, which could lead to foodborne illnesses (Esfarhani *et al.*, 2019) ^[9].

Table 7: Storage containers and its capacity

Parameters	Percentage (%)
Storing containers	
Open containers	10%
Air tight containers	16.6%
Closed containers	63.33%
Bamboo baskets	10%
Capacity	
Less than 10kg	33.33%
11-20kg	60%
21-30kg	6.67%

Quality Aspects

Quality factors influence the taste, texture, and overall appeal of fried snacks, as well as their shelf life. Moisture content, rancidity, oil quality, flavor changes, cooking media type, and storage conditions all have an impact on the overall quality and freshness of fried foods (Hwang *et al.*, 2016). Proper packaging, using moisture-resistant materials, and limiting air exposure can all help to prevent moisture absorption and maintain crispness. As shown in figure 4, entrepreneurs encountered three types of challenges: rancidity (53.3%), flavor changes (23.3%), and sogginess (23.3%). The majority of entrepreneurs (66.66%) opined that the type of cooking media would affect the shelf life of the product, while 33.3% opined that the storage conditions would influence the shelflife. Consumers preferred freshness (50%), texture (33.3%), and taste (16.6%) (Table 8).

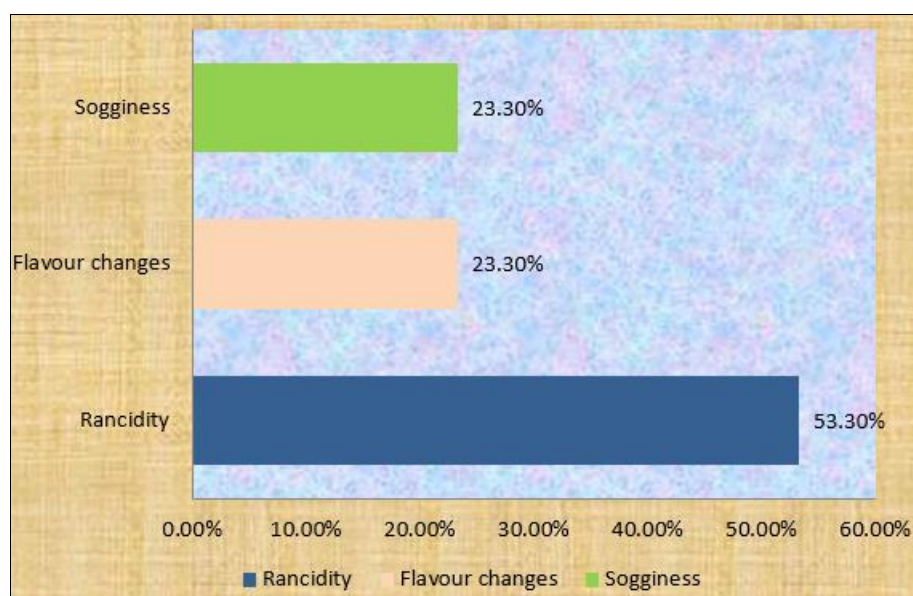
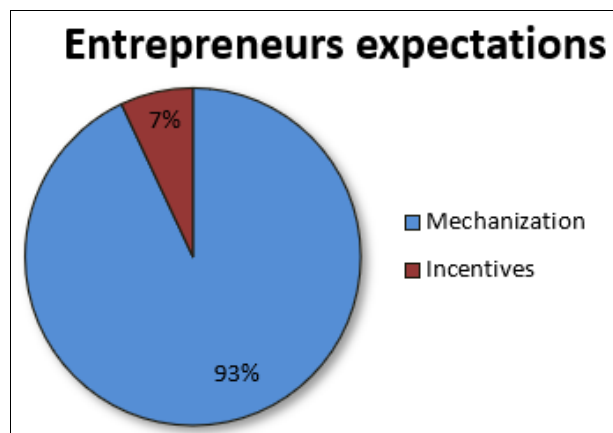


Fig 4: Challenges faced by entrepreneurs

Table 8: Quality parameters preferred by consumers

Quality Parameters	Percentage
Freshness	50%
Texture	33.3%
Taste	16.66%

**Fig 5:** Entrepreneurs expectations

As entrepreneurs expected mechanization (93%) and incentives from the local government (7%) because the manual process of making products was time-consuming and laborious. Many women, skilled in crafting the customary snack, are attempting to support themselves by operating traditional Telangana food businesses in the unorganized sector. Since these businesses frequently lack the funding necessary to modernize their facilities, the government should get involved in providing the funds and policies required to modernize these businesses' facilities and equipment, as well as to assist these women entrepreneurs in growing their businesses (Tiwari *et al.*, 2020) [22].

Conclusion

Traditional foods present a wealth of opportunities for entrepreneurs to build successful businesses. By combining cultural authenticity, niche market appeal, and strategic business practices, entrepreneurs can create sustainable ventures that contribute to the preservation of culinary heritage while meeting the demands of a diverse and evolving consumer base. Maintaining uniform product sizes is one of the challenges faced by traditional women-owned businesses. In order to lessen physical exhaustion and back pain associated with manual product preparation, they are looking for options for mechanization. Appropriate packaging should be introduced because they are having issues with breakage and storage. Many businesses prepare their products on a daily basis because they lack storage facilities. Entrepreneurs anticipate that mechanization will make the preparation process easier, and that local government policies and incentives will encourage future generations to launch their own businesses and expand those that already exist.

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