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Induja Madgula

Department of Foods and Nutrition, College of Community Science, Acharya NG Ranga Agricultural University, Guntur, Andhra Pradesh, India

K Lakshmi

Assistant Professor, Department of Food Science and Nutrition, College of Community Science, ANGRAU, Guntur, Andhra Pradesh, India

J Lakshmi

Professor and Head, Department of Food Science and Nutrition, College of Community Science, ANGRAU, Guntur, Andhra Pradesh, India

K Dhana Sree

Assistant Professor, Department of Extension Education and Communication Management, College of Community Science, ANGRAU, Guntur, Andhra Pradesh, India

Corresponding Author

Induja Madgula

Department of Foods and Nutrition, College of Community Science, Acharya NG Ranga Agricultural University, Guntur, Andhra Pradesh, India

A survey on hygienic practices followed by the street vendors in Guntur town, Andhra Pradesh

Induja Madgula, K Lakshmi, J Lakshmi and K Dhana Sree

Abstract

Food preparation always requires proper hygienic practices such as cleanliness, sanitation and better handling techniques. A study was conducted to explore the hygienic practices followed by street food vendors in Guntur town, Andhra Pradesh, India. To carry out the study, the town was divided into four equal quadrants. From those four quadrants a total of 60 vendors who were selling snacks such as *samosa*, *punugu*, *bajji* and *jilebi* were selected by using Random sampling technique. A survey was carried out by using a structured questionnaire among those selected vendors to collect the information regarding their vending practices. Through the study it was observed that only 53.3% of total vendors were following average hygienic practices, 40% of vendors did not follow any hygienic practices and 6.6% were following very poor practices at the site of vending during preparation and selling of food. These observations and findings suggest that the street food scenario in the town was quite disturbing and requires stringent steps to improve practices.

Keywords: Street food vendors, cooking practices, hygiene and sanitation, health concerns

Introduction

The term "street food" refers to a variety of ready-to-eat foods and beverages sold and sometimes prepared, in public places. Street food may be consumed where it is purchased or can be taken away and eaten elsewhere ^[1]. In current scenario, the street food industry and ready to eat foods play an important role in cities and towns as they are easily available to the millions of people and also meets the demands of dwellers ^[2]. Street food handling and the practices that are followed by the vendors has become a vital public health issue and a huge concern to everybody ^[3]. Improper food handling and unhygienic practices followed by the untrained and poorly educated vendors may enable pathogenic bacteria come in contact with the food which will multiply and may cause serious health hazards to the consumer ^[4]. Owing to lack of basic services and infrastructure, such as water supply, poor knowledge on basic food safety precautions street vended foods may lead to significant community health problems ^[5]. A research was undertaken to observe food safety and hygienic practices among street food vendors and how consumers must be aware of the practices followed by the vendors and how it affects public health.

Material and Methods

A detailed description on material used and methods followed for conducting the experiment on cooking and hygienic practices used by the street vendors in making deep – fried foods are given here. A preliminary survey has been conducted in Guntur city by using a structured questionnaire. The information regarding number of street food vendors, their food preparation and selling practices, type of oils used, number of times the oil was being used for frying, number of times the oil was changed and other observations including the source of procurement of oil, usage of leftover oil, storage of oil, environment in which the foods are sold and personal hygienic practices followed by the vendors was collected. The city was divided into four quadrants and vendors who were selling the selected foods (*samosa*, *bajji*, *punugu* and *jilebi*) were enlisted. The details of total 60 vendors were collected by using interview method.

Results and Discussion

As per the survey conducted, the results are tabulated and discussed under here. The information given was collected by interviewing the vendors and also by observations made at the time of vending.

General parameters such as age, gender, qualification and years since they are carrying out business was collected. Information regarding hygiene, sanitation, cooking and handling of equipment was taken through observations.

Table 1: General information of vendors

General parameters	Classification	Percentage
Age group (Years)	18 – 25	26
	25 – 35	41.6
	35 – 45	21.6
	45 – 55	10
Gender	Men	58.3
	Women	23.3
	Men and women	18.3
Qualification	Uneducated	30
	School drop out	20
	SSC	31.6
	Intermediate	18.3
Years carrying out business	1 year	21.6
	1 – 3	36.6
	3 – 5	25
	5 years	16.6

Table 2: Hygiene and sanitation practices by vendors

Sanitation parameters	Classification	Percentage
Hygienic practices	Nil practices	40
	Poor hygiene practices	6.6
	Average conditions	53.3
Cleanliness of equipment	Nil maintenance	31.6
	Poor cleanliness	43.3
	Average maintenance	25

Table 3: Cooking and handling practices by vendors

Cooking parameters	Classification	Percentage
Source of oil	General stores	43.3
	Local oil mill	35
	Wholesale markets	21.6
Type of oil	Palm oil	80
	Groundnut oil	20
Number of batches fried	3 batches	5
	4 batches	23
	5 batches	20
	6 batches	11
	7 batches	3
Change of oil after use	Once in a day	48.3
	Twice in a day	36.6
	Thrice in a day	15
Blending of oils	Blend used and unused oils	48.3
	Not revealed	18.3
	Do not blend	16.6
	Blend whenever needed	21.6
Storage of oils after use	Steel bowls/ kadai	40
	Steel tins	31.6
	Plastic containers	28.3

The survey data indicates that the vendors were mixing both the fresh and used oils without actually replacing the used oil with fresh oil. All the vendors reported that they would store the oil if it remained after frying and reuse it for the following day. It was observed that the oils were stored in tin/steel containers/ kadai after using which when exposed to air is more prone for developing oxidative rancidity. Through few observations made at the site of vending, the practice of cleanliness of vessels and other equipment that were used for frying foods was observed as it is a prime requisite for food

handlers. Among the vendors, many did not maintain cleanliness of equipment and vending carts had poor appearance because of poor practices.

General information

Among the 60 vendors, majority (41.6%) were in the age group of 25 – 35 years, while only 10% of the vendors were in the age group of 45 – 55 years. The present survey data showed that the 58.3% of street food businesses was run by only men, 23.3% by only women while 18.3% of the street food vending carts was managed by both men and women. Regarding the educational qualification only 31.6% have completed SSC and fewer members (18.3%) have completed intermediate which shows that low level of education and knowledge interprets with the good quality vending practices. As per the information collected regarding the number of years the respondents were carrying out street food vending, it was found that, 36.6% were vending since 1 – 3 years.

Cooking parameters

In the present study, it was found that majority (43.3%) of the vendors had bought oil from general stores and remaining 35% and 21.6% of them had bought from local oil mills and general stores respectively. The oils are available in 15 liter tin containers or in 1 kg poly ethylene pouches. As far as the source of oil used is concerned, maximum number of the vendors (80%) was using palm oil for the preparation of deep fried snack foods while 20% were using ground nut oil for frying of foods. Thermo oxidative alterations of palm olein oil such as Total polar compounds (TPC), chroma, blueness, polymetric triglycerides, viscosity and refractive index were measured during controlled heating and repeated deep frying conditions. All the parameters increased with increase in number of frying cycles. There was a decrease in linoleic acid and increase in palmitic acid whereas there was no change in oleic acid with increase in number of frying cycles^[6].

The vendors were using around 3 – 5 liters of oil at a time for deep frying and were adding fresh oil to the already used batch of oil, whenever the quantity of oil reduced. It was also observed that the vendors fried foods (snacks) in batches. Five percent, twenty three percent, twenty percent, eleven percent and three percent of the vendors were using the same oil for frying 3, 4, 5, 6 and 7 batches respectively. The effect of frying on chemical properties of edible vegetable oils in terms of acid value, peroxide value, water content, and total polar components was studied. After the study, it was stated that there is an increase in the acid value, peroxide value and total polar components after frying several times, which may lead to health risk^[7].

Nearly, 48.3% of vendors changed the oil only once in the whole day, 36.6% changed 2 times in the whole day, while some vendors (15%) changed the oil thrice in a day. This indicates that more often the vendors were mixing both the fresh and used oils without actually replacing the used oil with fresh oil. The quality of in-use oils, fresh oils and discarded oils by collecting from 11 commercial vendors from Nairobi town, Kenya. Chemical properties were analyzed for quality evaluation. The investigation showed that the oils underwent hydrolytic degradation during high heat frying conditions due to which the free fatty acid levels increased more and it was said to affect the quality of oils^[8].

Approximately, 43.3% of vendors were blending both used oils with unused oils which is a bad practice. Some (18.3%) vendors did not reveal the actual practice, 16.6% reported that

they do not blend and 21.6% reported that they will blend whenever it is needed. And all the vendors reported that they would store the oil if it remained after frying and reuse it for the following day. A study was conducted to analyze the quality and safety of frying oils used in restaurants, in order to assess the oxidative and hydrolytic state of oil. It was suggested that 30 – 35% of oils those are in – use and 45 – 55% of discarded oils were not acceptable for consumption^[9]. The vendors stored the oils in different containers such as, plastic containers (28.3%), steel tins (31.6%) and steel bowls (40%) with closed lid, as per the survey. The oils stored in tin or steel containers are more prone for developing oxidative rancidity.

Hygienic parameters

Through few observations made at the site of vending, with regard to hygienic practices it was found that nearly, 53.3% were following average hygienic conditions, 40% of vendors did not practice any hygienic habits and 6.6% were having very poor hygienic practices rendering the foods unsafe for consumption. The practice of maintenance of cleanliness of vessels and other equipment that are used for frying foods was observed as it is a prime requisite for food handlers. Among the vendors, 31.6% vendors did not maintain cleanliness of equipment, 25% vending carts had average cleanliness and 43.3% of vending carts had poor appearance because of poor practices. An experiment conducted on the safety of street foods in Agartala, North east India described that though the vendors were having a least knowledge about the hygienic practices, they were not following them minimally also. It was pointed that, for fulfillment of the essential food safety and hygiene measures, food licenses should be issued to the subjects. They need to be provided with proper water management, waste management and basic sanitation to decrease the gap between their knowledge and practice of vending of safe food^[10].

Conclusion

From the survey it was observed that, the oil undergoes many physical and chemical changes after repeated fryings. The changes depend on the different parameters such as temperatures of fryings, types of oil used, storage of fried oils, different frying conditions, number of fryings, sanitary practices and cleanliness of equipment. The deterioration of quality of oil affects the deep fried snacks near street vendors, which are widely consumed by the public. And this consumption of deep fried snacks, poses a nutritional loss and also health hazard to the consumer.

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