Available online at www.ijpab.com

DOI: http://dx.doi.org/10.18782/2320-7051.2485

ISSN: 2320 – 7051

Int. J. Pure App. Biosci. **5 (1):** 996-999 (2017)

Research Article

International Journal of Pure & Applied Bioscience

OPEN ACCESS

To Check the Presence and Type of Adulteration in Various Food Ingredients Available in Local Market of Dantiwada

Namrata G. Khatri*, Prashant J. Joshi, Preeti H. Dave and Poonam P. Thakar

Department of Food Science and Nutrition, ASPEE College of Home Science and Nutrition, S.D. Agricultural University, S. K. Nagar - 385506, Gujarat

*Corresponding Author E-mail: khatrinamrata88@gmail.com

Received: 20.01.2017 | Revised: 29.01.2017 | Accepted: 2.02.2017

ABSTRACT

Indian consumers spend the highest percentage of their income on food. And it is expected that they get the maximum returns for their money they spent over the food material. One of the rights of the consumer is "Right to Safety" which protects them against products, production processes, services and adulteration which are hazardous to health or life. Food adulteration may either negatively effect to the consumer's health or deteriorate the nutritional and organolaptic quality of food items. To ensure the safety of food, it is very important that various food materials purchased by consumers should be free from adulteration. Some tests are available by which consumer can detect adulteration in quite a few of commonly available food items. These simple tests require few simple chemicals and reagents, tools and physical observation to test the adulteration at home scale level. Consumers can practice these tests and ensure food safety. Testing samples were selected from five food groups. The most commonly used food ingredients were given preference while sample selection, and loosely available (unpacked) ingredients were selected as samples. It is concluded from the present study that majority of the food ingredients were found adulterated. During the study, mainly two types of adulteration were found i.e., physical and chemical. In cereals and pulses, prevalence of physical type of adulteration was high. While in tea, salt and spices and condiments, both physical and chemical type of adulteration were present. The food samples which were available in loose were found mostly adulterated. Such food is not safe and it may be hazardous to health of the consumers. Since these tests are very easy to perform at home, one can easily check that the food he/she is consuming is adulterated or not. Thus the consumers should be made aware regarding these tests to prevent themselves from consuming the adulterated food.

Key words: *Food Safety, Food Adulteration, Adulterant*

INTRODUCTION

Indian consumers spend the highest percentage of their income on food. And it is expected that they get the maximum returns for their money they spent after food material. One of the rights of the consumer is "Right to Safety" which protects them against products, production processes, services and adulteration which are hazardous to health or life.

Cite this article: Khatri, N.G., Joshi, P.J., Dave, P.H. and Thakar, P.P., To Check the Presence and Type of Adulteration in Various Food Ingredients Available in Local Market of Dantiwada, *Int. J. Pure App. Biosci.* **5(1):** 996-999 (2017). doi: http://dx.doi.org/10.18782/2320-7051.2485

Food adulteration may either negatively effect to the consumer's health or deteriorate the nutritional and organolaptic quality of food items. To ensure the safety of food, it is very important that various food materials purchased by consumers should be free from adulteration.

Some tests are available by which consumer can detect adulteration in quite a few of commonly available food items. These simple tests require few simple chemicals and reagents, tools and physical observation to test the adulteration at home scale level. Consumers can practice these tests and ensure food safety. That is why in present studied, commonly available food ingredients in the local market of Dantiwada were tested for adulteration with the help of such tests.

MATERIALS AND METHODS

Testing samples were selected from five food groups. The most commonly used food ingredients were given preference while sample selection, and loosely available (unpacked) ingredients were selected as samples. Food selection specification and simple tests along with physical observation were used to detect adulteration.

For cereals and pulses, the samples were tested physically by examining its wholesomeness, uniform size, soundness of smell, insect bites, fungus, broken pieces, foreign materials etc.

To test the sugar and jaggery, the samples were examined and tested by dissolving in water and by filtering through filter paper and also by visual examination.

To check presence of saw dust and color in spices powder, they were added into the water and wet filter are used. By adding into the water, and with the help of wet filter paper, spices powder, tea and condiments were checked for adulteration. Salt samples were tested with iodine test.

RESULTS AND DISCUSSION

As per shown in table number 1, five food groups were tested for the presence of physical or chemical adulteration and for microbial/insecticidal/rodent contamination.

Table 1: Types of Adulteration found in Food ingredients

Sr. No.	Samples	No. of Samples	Presence of Adulteration	Types of Adulteration				
				Physical	Chemical	Microbial	Insects	Rodents
1.	**Cereals**							
	Rice	3	3	√	-	-	-	-
	Wheat	3	3	√	-	-	-	√
	Bajara	3	2	√	-	-	√	√
	Bajara flour	3	2	√	-	√	√	√
2	**Pulses**							
	Bengal gram	3	2	√	-	-	-	-
	Green gram	3	2	√	-	-	√	√
	Tur dal	3	1	√	-	-	-	-
3.	**Sugar and Jaggery**							
	Sugar	3	3	√	-	-	-	√
	Jaggery	3	3	√	-	-	√	√
4.	**Spices and Condiments**							
	Black pepper	3	2	√	-	-	-	-
	Cloves	3	2	√	-	-	-	√
	Red chilly powder	3	2	√	√	-	-	-
	Coriander powder	3	1	-	√	-	-	-
	Turmeric	3	2	√	√	-	-	-
5.	**Other**							
	Tea	3	3	√	√	-	-	-
	Salt	3	3	-	√	-	-	-

Cereals

In all three samples of Basmati rice, broken rice, smaller rice (other than Basmati) and color variation in seeds were observed.

All three wheat samples were found adulterated with gravels, twigs, trash, dirt, broken wheat pieces, immature wheat grains and foreign seeds. Insect bites, rodent's excretes, lumps and insects were also found in two samples.

Similarly in bajara samples out of three, two samples were found adulterated with stones, dust, twigs, trash, insect bites, lumps and insects. In one sample, noticeable size variations of grains was observed. Out of three bajara flour samples, two samples were found clean but in one sample, lumps and insects were found.

Pulses

In pulses, Bengal gram, green gram and tur dal samples were tested for adulteration. Out of three samples of Bengal gram, one was found of good quality and free from adulteration. Another two samples were found adulterated with stones, twigs, insect bites, immature seeds, discolored seeds and foreign seeds. Similar results were found in two samples of green gram and one sample of tur dal.

Sugar and Jaggery

Three samples of sugar were dissolved in water and impurities like stones, sand, dust, insects and excretes of rodents were observed. In jaggery samples, two samples were found highly adulterated with physical impurities and dead insects.

Spices and Condiments

Out of three samples of black pepper, two samples were found adulterated with papaya seeds. When pepper seeds were dipped into the water, adulterated portion found floating over the water surface.

All the three samples of clove were found adulterated with twigs, immature cloves, broken pieces and smaller sized cloves.

Out of three red chilly powders, turmeric powder and coriander powder samples, two red chilly powder, two turmeric powder and one coriander powder samples were found adulterated with artificial colors. It was estimated by sprinkling small amount of spices powder on the surface of water. Adulterated samples were found leaving trail of colors immediately.

The three tea samples were tested by sprinkling over the wet filter paper. And all the samples left brown spots on wet filter paper and were found adulterated with artificial coloring matter.

In case of salt, the samples were tested by putting the salt on cut surface of lemon to detect the presence of iodine. But no color changes observed, so it indicated the absence of iodine.

CONCLUSION

It is concluded from the present study that majority of the food ingredients were found adulterated. During the study, mainly two types of adulteration were found i.e., physical and chemical. In cereals and pulses, prevalence of physical type of adulteration was high. While in tea, salt and spices and condiments, both physical and chemical type of adulteration were present. The food samples which were available in loose were found mostly adulterated. Such food is not safe and it may be hazardous to health of the consumers. Since these tests are very easy to perform at home, one can easily check that the food he/she is consuming is adulterated or not. Thus the consumers should be made aware regarding these tests to prevent themselves from consuming the adulterated food.

REFERENCES

1. Bonner, P. A., Consumer Competency : A National Status Report (1992).
2. Chimmad, B. V., Mannual of Winter Scool on Post Harvest Technilogy and Value Addition of Grains for Designer Foods to Address Life Style Disorders and Health Challenges: 182 (2009).
3. DNHE-1Food Selection- I and II, Food Safety, Aravali Printers & Pulbishers Pvt. Ltd. New Delhi-20, 23-31, 86-92 .(1997).
4. Graham, D. H., safety of Foods. Avi publishing Company, Inc, West Port : 15 (1982).

5. Khader, V., Textbook of Food Science and Technology, ICAR, New Delhi: 46 (2001).
6. Manay, S. N. and Shadaksharswami, M., New Age International (P) Ltd. New Delhi: 398 (2008).
7. Swaminathan, M., Essentials of Food and Nutrition, Volume II, The Bangalore Printing and Publishing Co. Ltd., Bangalore: 439 (2006).
8. www.tribuneindia.com