



ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 5.2
IJAR 2016; 2(7): 675-676
www.allresearchjournal.com
Received: 08-05-2016
Accepted: 09-06-2016

Bipasa Misra
ME, Bioprocess Engineering,
Chemical Engineering
Department Jadavpur
University, Kolkata-700032,
West Bengal, India.

Additives adulteration – Two recent shocking facts: A review

Bipasa Misra

Abstract

Adulteration of food is the fact where food becomes impure, unsafe for consuming and an adulterant is a chemical substance which should not be contained within the food for legal or other health reasons. Adulteration sometimes happened when ingredients are not properly tested, cheap ingredients are used, additives used are not certified as generally recognized as safe (GRAS) by FDA. Recently two shocking facts have happened in India related to the adulteration with chemical additives – one is MSG and Lead controversy of Nestle India product Maggi Noodles and the second is Potassium Bromate & Iodate traces in some bread samples sold in Delhi.

Keywords: Adulteration, additives, GRAS, MSG, potassium bromate, FDA

Introduction

The use of food additives is not a modern day invention, but the question of food safety is one that received widespread attention in recent years. Generally, food additives are used to enhance the nutritional value of food improves its flavor, texture to make the food more attractive and consumer acceptable, that means additives are used to enhance the quality of the food. So there are some guidelines for using food additives like the additives should be generally recognized as safe (GRAS) and they should be used in no effect level, this is very important fact, otherwise the food will be unsafe to consume. Sometimes it can cause harmful diseases even cancer. This is additive adulteration. The two major facts related to additive adulteration are-

1. MSG and Lead controversy of Maggi (Nestle India product)
2. Potassium Bromate and Iodate controversy in the bread samples sold in New Delhi

Fact 1: Maggi Controversy

In July 2015 the controversy began against the leading noodle brand Maggi when an officer of the Uttar Pradesh food safety & drug administration based in Barabanki ordered to test Maggi samples in the laboratory of Gorakhpur and repeat test was done at the central laboratory of Kolkata. The Gorakhpur lab tested for MSG to check Nestlé's claim that Maggi had none. Both tests found MSG and addition the Kolkata lab found very high quantities of lead i.e. 17.2 ppm beyond its limit 2.5 ppm.

Why is MSG used in Maggi and what are the adverse effects when used in higher amounts?

Monosodium glutamate (MSG) is the sodium salt of a common amino acid- Glutamic acid. Glutamic acid is present naturally in our body, many food and food additives. MSG is used as a flavor enhancer in Chinese foods. Canned vegetables, soups & processed meat. The food & drug administration (FDA) has classified MSG as a food ingredient that generally recognized as safe with the highest limit as 0.053gm/100gm of food, but it's used is somewhere controversial. It is said that if MSG as taken at a higher amount. Some symptoms can be detected in human they are- Headache, flushing, sweating, facial pressure or tightness, numbness tingling or burning in the face, neck and other areas, heart palpitations, chest pain, nausea, weakness- these symptoms are together known as Chinese restaurant syndrome.

Correspondence
Bipasa Misra
ME, Bioprocess Engineering,
Chemical Engineering
Department Jadavpur
University, Kolkata-700032,
West Bengal, India.

MSG comes under the code E621. FSSAI said that if MSG is added to any food product or if MSG is present in any food, that should be mentioned in packaging label, but Maggi labelled as-"No added MSG" which brought this misleading or misbranding controversy.

Why was Lead found in Maggi samples?

Lead is earth crust present in air, water or soil. So lead can be present in raw food material like vegetable, wheat flour etc. The permissible limit of lead in food is only 0.01-2.5 ppm but it was found that Maggi contained 17ppm of lead. According to the scientists, small amount of lead may come from raw materials or water or flavoring materials or packaging or curling agents but the lead is not an essential component of noodles, this case has happened because raw materials are not evaluated properly.

Dangerous effects of lead on human

Lead is extremely harmful to developing fetuses, pregnant mothers, and kids. High blood lead levels causing a behavioural problem & mental retardation. High levels of lead which are carcinogenic with toxic effects on kidney, skeletal and respiratory system.

Case 2: Potassium Bromate Controversy

A study of Science & Environment (CSE) found that 84% of bread & bakery samples collected from New Delhi contained the residue of Potassium Bromate (KBrO₃) & Potassium Iodate (KIO₃) or both.

Potassium Bromate & Its Harmful Effect

Potassium Bromate comes under the code E924 is an oxidizer used to strengthen dough and enhance its elasticity. This helps bake uniform and whitened bread.

Some experts from the baking industry say that Potassium Bromate is acceptable if found in less than 15-30 ppm (parts per million) but if the baked goods are not baked for long enough at a high temperature or if the quantities are liberal, there will be residual of this harmful material.

According to the International Agency for Research on Cancer (IARC), there was sufficient evidence that showed the carcinogenicity of Potassium Bromate. The chemical causes renal tubular tumours or thyroid follicular tumours. This chemical also damages genetic information required for mutation.

Adverse effect of Potassium Iodate

Potassium Iodate is not used for flour treatment in various country due to a possible higher intake of Iodine.

Studies showed that excessive Iodine lead thyroid disorder – hyperthyroid status in humans which increase the risk of thyroid cancer.

Government Actions

Action against Nestle India

The government claimed Rs.640 crore from Nestle India withdraws about 30,000 tons of popular instant noodles; it was banned for six months, now Maggi has come back in 100 towns through 300 distributors except in eight states where it is still not allowed.

Action against Potassium Bromate & Iodate

The European Union, China, South Korea, Sri Lanka, Canada, Australia, Brazil, Peru, and Columbia have banned the use of Potassium Bromate as flour treatment agent. Now the

Government banned this agent in India. FSSAI issued a notice regarding this. They also referred Potassium Iodate issue to a scientific panel for taking further decision on it.

Conclusion

These incidents are wake up call for us to be concern about foods. Food is the source of life, but now-a-days these facts show us that due to lack of proper analysis our foods become poisonous. So all the food processing industries should make a proper quality and hazard analysis for raw materials, processing steps & final products. They should not use that material which is banned or not safe to consume and should use all the materials in proper no effect level.

References

1. How safe is our food: Food & Beverage controversy in India in recent years .[http:// www.mapsofindia.com-December 31,2015](http://www.mapsofindia.com-December 31,2015)
2. Viswanath Pilla. Six things to know about Potassium Bromate in bread. <http://www.livemint.com>
3. After Maggi ban, Govt. hits Nestle with 640 cr. damage suit. <http://www.hindustantimes-August 12,2015>
4. Maggi Noodles Controversy: Nestle India to be prosecuted. <http://food.ndtv.com-June 03,2015>
5. What is Potassium Bromate- The Villain Discovered in Delhi's Bread. <http://food.ndtv.com-May 25,2016>
6. Potassium Bromate in bread-lab –report-20 May,2016.pdf
7. www.cseindia.org/userfiles
8. Government bans use of Potassium Bromate & Potassium Iodate in food. www.scroll.in – June 21,2016
9. M.Singh-2005. Fact or Fiction? The MSG Controversy-Dash <https://dash.harvard.edu/handle/1/8846733>