

Contamination in spices & herbs: Remedies for proper health

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Abstract

India is a land of spices & herbs and there are 52 spices, which have been identified by Indian Spices Board. All these spices & herbs have traditional uses, medicinal properties and the popularity of highly spiced cuisine and consumer demand for foods with enhanced function in flavor, taste and protection in diseases have resulted in a continuing interest in the use of spices in food products.

The spices & herbs are consumed in various forms such as whole spices, ground spices, oleoresins, extracts etc. Ground spices & herbs maybe adulterated with artificial colours, starch, chalk powder, etc. to increase their weight and enhance appearance. High value ground spices are frequently adulterated for economic gains. Consumption of adulterated spices for prolonged periods may result in stomach disorders, cancer, vomiting, diarrhoea, ulcers, liver disorders, skin disorders, neurotoxicity, etc. Moreover, spices and herbs can often be a major source of adulteration & microbial contamination, with potentially harmful microbes, such as *Staphylococcus aureus*, *Yersinia intermedia*, *Shigella spp.*, *Enterobacter spp.*, *Acinetobacter calcoaceticus* and *Hafni alvei*. In some cases Salmonella concentrations have also been reported in spices. Aflatoxin produced by the fungi *Aspergillus flavus*, *Aspergillus parasiticus*, and *Aspergillus nomius* is the most common mycotoxins in spices. This type of contamination by microorganisms can occur during pre or post-harvest processing. Even though most of the spices have antimicrobial and antioxidant properties, they are sometimes affected with microorganisms, which may be harmful for human health after consumption.

The high levels of adulteration and microbial contamination in spices and herbs reported by many of the studies reviewed suggests a need for better control in all aspects of the production, processing and usage of food products to prevent potential food spoilage and food-borne illnesses due to contaminated spices and herbs.

Speaker Biography:

Dr Amit Krishna De, M.Sc. in Biochemistry and Ph.D. From Calcutta University has area of specialization as Biochemical Pharmacology and Nutritional Toxicology. He has done extensive work on Indian spices for last 25 years, particularly on biochemical and pharmacological actions of chili and other spices. He has studied 52 Indian spices, identifying their active principles and studying their mode of action on biological system. He has worked on post-harvest technology, preservation and microbial contamination of spices.

Dr De is at present Executive Secretary of Indian Science Congress Association at Kolkata (under Department of Science & Technology, Govt of India). He is also fellow of several Academies and has been awarded with more than 10 international awards

Dr De is Reviewer of Journal of Ethno pharmacology, Netherlands, International Journal of Food Science & Nutrition, UK, Proceedings of National Academy of Sciences, Studies on Ethno- Medicine, and Frontiers in Pharmacology,

Dr De has more than sixty research publications in journals of International repute and is author of several books including Chili, Medicinal Values of Indian Spices, Trace Elements in Health and Diseases, Tobacco & Smoking, Selected Questions and Answers in Biochemistry, Environmental Science: An Easy Approach" and "Perspectives in Environmental Health. He has also edited some books like Sustainable Development and Environment, Recent Trends in Spices & Medicinal Plant Research, Environment & Man, Spices Elixir of life etc. His recent edited book on "Capsicum" from Taylor & Francis, UK has become very popular.

Dr De has been M.Sc. and Ph.D. examiner of different universities and has delivered lectures in different Institutions/ Organizations/ Universities all over the world on spices.

[7th International Conference on Food Safety and Health;](#)
Webinar | June 29-30, 2020.

