

COMMON SPICES ADULTERATION & THEIR DETECTION TECHNIQUES***Aman Gupta¹, Bharti Yadav² Durgesh Pratap Singh³**¹Assistant professor, Agril. Economics, J.S. University, Shikohabad²Associate professor, HOD Home Science, J.S. University, Shikohabad³Assistant professor, Seed Technology, J.S. University, Shikohabad

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Abstract : Food adulteration is a global concern and developing countries are at higher risk associated with it due to lack of monitoring and policies. However, this is one of the most common phenomena that has been overlooked in many countries. Unfortunately, in contrast to common belief, spices adulterants can pose serious health hazards leading to fatal diseases. This paper presents a detailed review of common spices adulterants as well as different methods to detect the adulterants both qualitatively and quantitatively. This study is organized to be an 'adulterant based' study instead of 'techniques based' one, where qualitative detection for most of the common adulterants are enlisted and quantitative detection methods are limited to few major adulterants of spices. Apart from regular techniques, recent development in these detection techniques have also been reported. Nowadays spices is being adulterated in more sophisticated ways that demands for cutting edge research for the detection of the adulterants. This review intends to contribute towards the common knowledge base regarding possible spices adulterants and their detection techniques.

Keywords: Adulteration; Adulterant; Additives; Food Safety; Food Inspection

Introduction : Food adulteration is a serious problem worldwide, and it has received a lot of attention from food safety authorities because it is dangerous to people's health.

Adulteration is an addition of another substance to a food item in order to increase the quantity of the food item in raw form or prepared form, which may result in the loss of actual quality of food item. These substances may be other available food items or non-food items. Among meat and meat products some of the items used to adulterate are water or ice, carcasses, or carcasses of animals other than the animal meant to be consumed.

Food refers to a substance which is intended for human consumption. Food is our basic need and plays a major sustaining role. Food may be deliberately or accidentally contaminated. Major food hazards involve contamination and adulteration. Adulteration is a common problem in food, spices, and cosmetics. It is often performed by adding adulterant to the authentic product. Food products are vulnerable to adulteration at any stage. Adulteration is widespread in the United States and in the rest of the world. It thrives in a period of shortages.

Materials and Methods

In the study we have checked some of the common food substances from the local market e.g., chilli powder, turmeric powder, asafoetida, jeera etc.

We have selected four different food groups as shown in Table 1. for the testing and in that some of the food tested from the branded products and some of the food products from the local markets of the Firozabad District.

Items (Spices)	Adulterants	Test	Health Effects
Chilli Powder	Brick Powder	Brick powder settles fast and chilli powder settles slowly when added into glass of waer. Further rubbing the sediments will give the feed of grittiness.	Stomach disorder
Turmeric Powder	Any power (starch, wheat flour etc(Add few drops of toilet clenander to the sample. Instant pink/ violet colour, which , disappears on dissolution with water, indicate pure turmeric. If colour persists hence metanil yellow is present.	Stomach disorder
Asafoetida	Soapstone, other earthy matter	Shake a small quantity of powdered sample with water. Soapstone or other earthy matter will settle down at the bottom. If starch is added into it on dissolution in water a solution with turn turbrid and retained after some time while pure hing. Solution will again turn into colourless solution.	
Cumin	Grass seeds colore with charcoal dust	Rub cumin seeds on palm, palm turns black	

Results and Discussion ;

It was observed from the present study, that the branded products that we tested were non-adulterated as compared to than that of the non-branded local food products which was purchased from the local market.

Powdered spices like turmeric, chilli and garam masala were found to be non adulterated. However, all the spices which are selling locally unpacked were found to be adulterated in case of turmeric and chilli powder with metanil yellow and brick powder respectively.

Conclusion :

Food adulteration is worse in developing and underdeveloped countries due to the absence of adequate monitoring and lack of proper law enforcement. Therefore, consumers have to be alter and check the adulteration by their own time to time using the simple and easy experiments discussed above to keep themselves healthy, as we know health is wealth.

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