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Changes in the availability of nutrients and anti nutrients with simple processing methods

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Good quality food, apart from fulfilling basic need, is the key to sound physical and mental health; thus aiding in the holistic development of a human being. However, presence of inherent anti nutrients limit the bioavailability of nutrients to the body. In the backdrop of some known reports on these aspects, it was of interest to investigate and identify the suitable processing methods that help obtaining food products with enhanced nutrition. Experimental work on commonly known legumes was undertaken that revealed very interesting results. The bioavailability of all the nutrients studied (mineral, vitamins, starch, sugar, proteins, fiber) on processing of legumes showed an increasing trend. Out of all the processing methods selected, viz., atmospheric cooking, pressure cooking, roasting and sprouting, sprouting was found superior method of processing in terms of increased bioavailability of minerals, vitamins, fiber and proteins. Surprisingly, atmospheric cooking, a traditional method was found to increase the availability of soluble sugars with decreased galactose content and increased resistant starch (RS) as compared to pressure cooking. Decrease in galactose is beneficial since it is the building block of some sugars like raffinose, stachyose and verbascose which are implicated in flatulence, while increase in RS helps in the slow availability of sugars in body and may prove a good source to decrease blood sugar levels in diabetic patients. Interestingly, these processing methods were also found effective in reducing the antinutritional content (tannins, phytic acid, trypsin inhibitor activity) of legume seeds making them palatable and digestible thereby, reducing flatulence and other harmful effects of antinutritional factors. Sprouting was found best in reducing phytic acid and trypsin inhibitor activity. The research findings shows us an optimistic path of providing nutritious food from commonly available legumes using simple traditional processing techniques. However, the challenge lies in infusing these concepts in the modern life style and effective education to masses.

Biography

Jagriti Sharma has a diverse research background comprising of work with adsorbents to mitigate water pollutants; understanding pesticide dissipation in food matrices; mycotoxin chemistry in food; nutrient and anti nutrient bioavailability in food products and most recently, understanding beverage development. The paper presented is part of her doctoral work conducted at Indian Institute of technology – Delhi and Katholieke Universitiat Leuven, Belgium. The work aspires to answer critical questions on availability of different nutrients in food as effected by processing methods. It also focuses on lesser understood antinutrients in food. The simplicity of the methods employed makes it viable for the masses in general while reviewing the complexities of nutrient availability. Dhananjay Tewary is currently with Department of Biotechnology, India in an executive management position. He was consulted during the course of this investigation. Prof Santosh Satya conducts research on holistic aspects of food ranging from bio pesticides to bio availability of food.

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