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Fibre components of some commonly consumed foodstuffs and the effect of processing on fibre of cereals and pulses

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There is paucity of knowledge regarding the dietary fibre content of Indian Foods. Available knowledge in regard to crude fibre is considerably low as compared to actual fibre content. Similarly the quantity of fibre in foods present after being subjected to processes like sieving, cooking, sprouting is not known. Sample of different food stuffs were obtained from the general market and were ground into fine powder in a grinder and estimated for ADF and NDF. Flour sample was estimated for fibre before and after sieving. Rice and green gram were cooked separately by boiling till the grain became soft, the wet samples were then dried in shade and ground into fine powder and estimated for ADF and NDF. Bengal gram and green gram whole were sprouted separately to see the effect of sprouting on dietary fibre content and components. Pulses, specially the husk of bengal gram and green gram had highest ADF and NDF followed by fruits, vegetables and cereals. Sieving, cooking by boiling and sprouting lowered the fibre content of wheat flour, rice and gram. Sprouting lowered the fibre content as much cooking by boiling of gram.

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INTRODUCTION

Fibre once an orphan child of nutritional science, has during last decade generated considerable interest. Several studies have substantiated that dietary fibre is neither inert not innocuous and does play an important role in relation to human nutrition and disease, (Eastwood and Passmore, 1983; Editorial, high carbohydrate, high fibre diets for diabetes Mellitus, 1983; Healton, 1972). One of the major action of dietary fibre is through its effect on absorptive function of intestines.

Dietary fibre is a very complex substance consisting of cellulose of which there are different physical varieties, hemicelluloses or pentosans and great mixture of polysaccharides, also pectin and finally lignin which are not polysaccharides. Further methodology followed for food fibre estimation destroys certain amount of some components of fibre, resulting in the underestimation of their intake. It is, therefore, necessary that fibre content of various Indian foods commonly consumed be estimated with regard to different components like cellulolignin and hemicellulose since the beneficial or adverse effect of dietary fibre is dependent on them.

Components of dietary fibre are expressed as 'acid detergent fibre' and 'neutral detergent fibre.' The former includes fibrous portion contaning lignocellulose complex and latter hemicellulose in addition to lignocellulose complex. The difference in the two will show the level of unavailable hemicellulose.

Fibre foods are mostly not taken in their natural form. Sieving of bran, polishing of rice grain, removing of husk from pulses, fruits taken as juice or after removal of skin and also cooking and sprouting may affect its fibre content.

It will, therefore, be of interest to know the effect of these processes on the fibre content and composition in the food stuffs. No study to this effect is available in the literature.

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METHODOLOGY

Samples of different foodstuffs were obtained from the