

Acceptability appraisal and nutritional quality of food products incorporated with whey protein concentrate and soy flour

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ABSTRACT

Whey is a by-product of cheese or paneer making having a great nutritional value along with potential functional food ingredients. Soy proteins also have a great potential to increase the nutritional and physical qualities of food. Despite this nutritional importance, soy products are not used much due to a characteristic beany flavour and antinutritional factors. To make it a value added product, processing of soy products is of utmost importance. Moreover, soy products are deficient in sulphur containing amino acids, for which there soy products need to be blended with dairy products/cereals/pulses to make them nutritionally adequate and popular in areas where people suffering from PEM inhabit. With this information in mind, the present study was carried out with the objective to remove the beany flavour and antinutritional factors from soy flour by different processing techniques. Acceptability evaluation of some products prepared by incorporating WPC at 10 and 20 per cent level and their respective forms blended with soy flour have been undertaken. Nutritional analysis of most acceptable version of each product was carried out and compared with the standard.

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Key Words : Whey protein concentrate, Defatted soy flour, Nutrient composition, Sensory evaluation

INTRODUCTION

Malnutrition affects all segments of population in India. Among its different forms protein energy malnutrition is the most common. It is not one disease, but a spectrum of conditions arising out of an inadequate diet. To combat malnutrition, protein fortification of food is of interest and importance especially in the light to prevent malnutrition.

In recent years, much attention has been paid to a great variety of functional and nutritional properties of whey and soy proteins. Whey is a collective term referring to the serum or liquid part of milk that remains dissolved in the aqueous portion after the coagulation of casein into curd during the manufacture of cheese, where most of the fat and casein have been used in the cheese-making process. The remnant whey is high in both lactose and minerals (FAO, 2006).

A large part of the whey produced throughout the world as a by-product is drained into gutters, creating problem of pollution, besides loss of valuable nutrients. One of the most promising ways of utilizing dairy by-products in India could be their inclusion in wheat and soy flour for different food products preparation.

Soybean contains 40 per cent protein and 20 per cent

oil and can solve the protein calorie malnutrition of ever expanding population in our country. Raw soy is the most concentrated source of trypsin inhibitors. Trypsin inhibitors are not restricted to their effect on trypsin but may also inhibit other proteases that contain serine in the active site. Processing of soybean can reduce the trypsin inhibitors to a large extent.

In the form of soy flour, it can be used as a protein supplement and is generally recommended for making high protein breads, biscuits and other cereal based foods. One important consideration in combining whey protein concentrate with soybean is that soy protein is known to have a balanced amino acid, profile, although, methionine; a sulphur containing amino acid, is limiting in it. On the other hand, whey protein is rich in sulphur containing amino acids.

Thus, soybean and whey combination has the potential to provide low cost nutritious food products which could be exploited to fill the demand supply gap of nutrients and can be utilized in institutional feeding programmes of developing countries like India.

Addition of whey powder is valuable to the functional properties, also act as a source of nutrients to various foods as it contains approximately 50 per cent of the nutrients present in the original milk. Commercially