

Functional properties of peanut protein isolates

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Both developed and developing nations are today faced with continuous threats posed by the emergence of contagious animal diseases that have had and may continue to have serious health consequences on the world population. Considering the fact that animals are our traditional protein sources and that they are becoming more and more expensive, it is important for scientists to intensify research into alternative and affordable protein sources. Peanut is a rich and underutilized protein source that is cultivated worldwide. However, most peanuts grown are principally used for oil production, confectionaries and peanut butter (Tate *et al.*, 1990). According to Basha and Pancholy (1982) the extraction of vegetable oil from peanut yields partially defatted peanut flour (PDPF) which is essentially a protein-rich, inexpensive and underutilized by-product of the peanut industry. Functional properties of peanut protein have been the subject of limited studies that focused mainly on peanut flour (Prinyawiwatkul *et al.*, 1993) and limited information is available in the literature on the development and functionality of peanut protein isolate (PPI) as affected by oil extraction method. Therefore,

the objectives of this study were to develop a protein isolate from defatted peanut meal flour obtained from two different oil extraction methods and study the functional properties of the peanut protein isolates as indicators of their potential use by the food industry; and evaluate the effects of oil extraction methods on the functionality of peanut protein isolate.

Protein-energy malnutrition is becoming prevalent in third world countries as animal protein sources (our traditional protein source) become more and more expensive. It therefore becomes important for food scientists and other responsible organizations to explore cost-effective and affordable plant protein sources so as to combat the growing occurrence of protein-energy malnutrition in developing countries. This study therefore seeks to explore nutritionally functional protein sources from by-products obtained from different peanut oil extraction methods. Considering the millions of tons of by-products obtained from peanut industries, a reasonably high quantity of protein can be obtained that could be used in a variety of food formulations. This study could also be environmentally friendly as it seeks to convert potential wastes into functional and cost-effective food ingredients. Peanut industries, food processors and consumers stand to gain from the practical implementation of this work.

Cold pressed peanut meal cake and heat treated peanut meal cake were purchased from Qingdao Kerry Peanut Oil Co. Ltd. (Shandong province-China). Glucose and molecular weight standards were obtained from the

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