MANUFACTURE OF SOME IMITATED DAIRY PRODUCTS USING SOME OIL SEED PROTEINS

BY

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B.Sc. Agric. Sc., (Dairy Science and Technology), Ain Shams University, ٢٠٠٢

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Approval Sheet

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ABSTRACT

Heba Hassan Abd-Elaziem Salama. Manufacture of some imitated dairy products using some oil seed proteins. Unpublished Master of Science Thesis. Food Science Department, Faculty of Agriculture, Ain Shams University, (٢٠٠٧).

The possibilities of replacing dairy proteins in some products and the development of food items based on the nontraditional oilseed proteins were studied. Protein concentrate was prepared from soybean flour, flaxseed, sesame and almond flakes. Chemical analysis indicated that the flaxseed protein concentrate had higher protein content, hollocellulose, pectin and lowest value of hemicellulose when compared with other proteins. On the other hand, soybean protein concentrate had higher ash content and lower moisture, fiber and antioxidant contents when compared with sesame and almond proteins. The functional properties (water and oil binding capacity; foam capacity and stability; emulsifying activity and stability and nitrogen solubility index) of the nontraditional oilseed protein concentrates were determined at a wide range of pH. The possibilities of preparing ice milk containing ٢٥٪, ٥٠٪ & ٧٥٪ plant protein concentrate by mixing different supplementation levels of soybean, flaxseed, sesame and almond protein concentrates were demonstrated. The obtained results reveled that ice milk containing ٢٥٪ to ٥٠٪ flaxseed, sesame or almond had the highest organoleptic score and recommended for manufacturing functional ice milk with high fiber and antioxidant contents. Processed cheese spreads were also made by replacing Ras cheese in the base blend with Soybean flour or flaxseed flake powder at ratios of ٠.٠ (control), ٢٠, ٤٠, ٦٠ % by soybean flour or ٥, ١٠, ٢٠ % by flaxseed flake powder. The cheese spreads were evaluated for their chemical, physical and sensory properties, fresh and during storage at refrigerated temperature (٥^{o}C) for ٣ months. The control treatment had the highest contents of soluble nitrogen, ash, salt and total volatile fatty acids as well as acidity values when compared with treated samples. Processed cheese

spread made with different levels of soybean flour or flaxseed flake powder had the lowest values for meltability and penetration, but highest values for oil separation values compared with control. Sensory evaluation indicated that among all substitution treatments with soybean flour or flaxseed flakes the total palatability was decreased by increasing the substitution ratio. Processed cheese spreads with high acceptability can be produced using a formula contain Flaxseed flake powder (٥, ١٠ %) and Soybean flour ٢٠ % without major differences than control. The total costs for manufacturing processed cheese spread was reduced by ١٦,٢٢, ٢٧,٨١, ٣٨,٦٧, ٤,٠١, ٩,٢٩ and ١٧,٥٧ %, respectively compared to the cost of control.

Key words: soybean**,** flaxseed, sesame, almond, protein concentrate, chemical composition, functional properties, ice milk, processed cheese.

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