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Development and quality evaluation of soy-jambul seed powder fortified biscuits

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SUMMARY : In rural areas, malnutrition problem is severe in women and children because of traditional foods having low nutritive value. The nutritive valve of foods particularly biscuits could be improved by protein supplementation. Biscuits from blend of maida, soy flour and jambul seed powder were prepared by mixing in their different proportions *viz.*, 60 per cent : 34 per cent :6 per cent (A_1), 60per cent :32 per cent :8 per cent (A_2) and 60 per cent :30 per cent :10 per cent (A_3) and 60 per cent :40 per cent (control). Nutritional quality and sensory evaluations were carried out on the biscuits. The proximate composition of the biscuits ranged in values with moisture from 3.13 to 3.38 per cent, protein 16.10 to 18 per cent, fat 24.28 to 35.20 per cent, minerals (ash) 1.3 to 1.9 per cent. Significant difference (f < 0.01) existed in colour, texture, taste and overall acceptability of the biscuits.

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Though India is considered as the third largest producer of biscuits after USA and China. The production of biscuits in the country, both in the organized (0.44 mn tons) and unorganized sectors (0.66mn tons), is estimated to be around 11 million tonnes. The annual turnover of the organized sector of the biscuit manufacturers (as at 2001/ 2002) is 4'35 crores Indian Rupees. The biscuit market in the recent years has witnessed a little higher growth at around 8-10 per cent pa. The annual production of bakery products, which includes bread, biscuits, pastries, cakes, buns, rusk etc., is estimated to be in excess of 3 million tonnes.

Biscuits are very convenient and inexpensive food products and are becoming very popular among both rural and urban population especially among children as well as aged persons of India. A new type of jambul seed powder-containing biscuit have been developed and incorporated into the diabetic diet. It has been found to be effective in reducing the postprandial rise in the blood glucose level and in improving glycaemic control (Bhargava, 1991). These biscuits can be used for dealing with the symptoms of indigestion (Aiman and Shorti, 1962). These biscuits can be also stimulating the liver functions (Shorti, 1962). Hence, this biscuit contains high fiber and low calories so it is an excellent nutritional snack food with a high degree of acceptability especially to diabetic patients. If these biscuits are enriched with protein from soybean and jambul seed powder can help not only children's health but also maintaining health of diabetic patients. There is an ever increasing demand for high protein biscuits for therapeutic value. Nutritionally, biscuits can be easily fortified with protein – rich flours to provide a convenient food to supplement the poor quality diets. Protein, low calories and high fiber fortified biscuits contain nutrients in concentrated forms for feeding programmers at such institutes as day – care centers and schools or as emergency rations (Singh *et al*. 2000).

Biscuits may be regarded as a form of confectionery dried to very low moisture content. According to Fayemi (1981), biscuit is defined as a small thin crisp cake made from unleavened dough. Okaka (1997) described the production of biscuits as a mixture of flour and water but

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