Quality characteristics of Navarathna Nutri mix and its substitution in food preparation

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ABSTRACT

Value addition by incorporating millets and pulses in daily food preparations seem to be a current trend to provide needed nutrients for maintaining health status. Considering this, a study was undertaken to develop Navarathna Nutri mix (NNM) and analyze its physico-chemical and nutrient characteristics and shelf-life. The mix was prepared with a cereal, three kinds of millets, four types of pulses and an oilseed. The mix possessed optimum levels of moisture and ash and provided 65.4, 15, 3.04 g per cent of carbohydrates, protein and fat, respectively. The total bacterial and yeast count in the mix were well within the permissible level on 30 days of storage. Organoleptic characteristics of mix were tested by substituting it at different levels (10-50 per cent) in fermented batter, wheat flour and rice flour for the preparations of idli, dosa, chapatti and puttu. Sensory evaluation conducted with five point hedonic scale showed that the scores attained for higher level of substitution (50 per cent) were maximum and well acceptable. The results highlighted that the substitution of nutri blend would improve the quality, palatability, add variety and strengthen the nutritional value of the traditional food preparations.

Key words : Cereal-pulse mix, Quality, Acceptability, Shelf-life.

Traditional foods are an expression of culture, history and lifestyle. In addition, traditional foods are frequently palatable and this combined with reputed positive health effects, makes them attractive to the food industry (Trichopoulou *et al*., 2007). Challenges ahead in the development of heritage foods are value addition, convenience and health promotion. Value addition to our daily preparations seems to be essential for maintaining normal health. Nutritional quality of a food can be increased by incorporating mixed cereals (Gopalan, 1992). No one legume or cereal can provide adequate amounts of all nutrients to meet the nutritional requirements. However, even before knowledge on protein content, protein quality, digestibility and the nutrient requirements of human became available, it was recognized that mixing legumes with cereals in the diet could improve overall nutrition (www.fao.org). Vimala *et al*. (1990) suggested various infant mixes based on sorghum and pearl millet and fortified with soybean, green gram, red gram or Bengal gram flour. Cereal-pulse combination and fermentation improve the bioavailability of iron (Malhireddy and Agte, 1992). Hence, a study was undertaken with the aim to develop a Nutri Mix with cereals and pulses, providing better scope for convenience, quality, variety and nutritional value.

METHODOLOGY

The raw materials chosen for the present study were cereals and pulses commonly consumed by all kinds of people *viz.* bajra, jowar, ragi, wheat whole, bengal gram dal, black gram dal, green gram dal, horse gram and soy bean. These grains were purchased from the local market at Coimbatore city. The samples were cleaned to remove dust and other foreign particles. A weighed amount (Table 1) of each of the grains were taken, mixed and ground to a fine powder.

Table 1 : Composition of Navarathna Nutri mix (100g)	
Ingredients	Quantity(g)
Bajra	15
Jowar	15
Ragi	10
Wheat whole	10
Black gram dal	15
Bengal gram dal	10
Green gram dal	10
Horse gram	10
Soybean	5

Quality evaluation in terms of phsico-chemical characteristics and nutrient content of the Navarathna Nutri mix were analyzed using standard procedures *viz.*, moisture and total ash (IS2234:1989) carbohydrate (Anthrone method), protein (KELPLUS), estimation of fat and fibre – (SOCSPLUS and FIBRAPLUS).Total bacterial count and yeast and mould count of the NNM were assessed following the standard procedure to