

## Formation of high fiber biscuit

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Due to increasing nutritional awareness among consumer for high fiber, the present study was conducted to explore the possibility to incorporate rice bran in biscuit to increase fiber content. Supplementation of wheat flour with rice bran was tried at 10 per cent, 15 per cent, 20 per cent, 25 per cent level each. Prepared biscuit was subjected to physical, sensory and fiber content analysis to evaluate the suitability of biscuit for consumption. The width of biscuit decreased from 44 to 38.5 mm with increasing in the level of substitution of composite flour of rice bran. Similar trend shown by spread ratio (47.5 to 40.8 mm). However, biscuit thickness increased from 9.2 to 9.6 mm with increasing level of substitution. Nine-point hedonic score system was used for sensory evaluation of prepared biscuit which was generally decreased with increasing the level of substitution. At  $p < 0.05$  physical and sensory evaluation indicated that there were no significant differences between control treatment and composite biscuit of 85 per cent wheat flour and 15 per cent rice bran. Thus incorporation of rice bran not only improve the fiber content of biscuit (3.1%) but also add way to utilizing rice bran to increase fiber content in bakery product.

**Key Words :** Fiber biscuits, Wheat flour, Rice bran

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### INTRODUCTION

Dietary fiber provides several health benefits including reducing the risk of coronary heart disease (Wolk *et al.*, 1999; Pietinen *et al.*, 1996), type 2 diabetes (Kaline *et al.*, 2007), obesity (Pereira and Ludwig, 2001) metabolic syndrome and maintaining a healthy body weight (Howarth *et al.*, 2001 and Slavin, 2005). The recommended daily intake of adult men and women are 38 and 25g/d, respectively. But usual daily intake of dietary fiber was low enough and it to be of concern (John *et al.*, 2008). Supplementation of rice bran in basic recipes of biscuit is one way to increase the fiber content in bakery product.

Biscuits are ready-to-eat, convenient and inexpensive food product with longer shelf life which increase its consumption and demand (Kulkarni, 1997). The principal ingredients of bakery products are refined flour, fat, sugar and water (Wade, 1988). Biscuits are typically high in both fat and sugar and low in fiber and have been identified as a food contributing to negative health (Department of Health and Social Services, 1995). It has been recommended that the intake of biscuits and related products should be reduced (Adachi and Hino, 2005; Ashwell,

1993). This study concentrated on one of the best selling biscuits in the UK that is consumed regularly by both children and adults. Consumption of high fiber products have several health benefits such as in hypertension, diabetes, colon cancer and many others. The role of dietary fiber in controlling chronic disorders like diverticulitis, bowel cancer, cardiovascular diseases, diabetes constipation etc. has been well documented. The dietary fiber content of baked goods may be increased by adding various plant components rich in dietary fiber like oat fiber, wheat bran, rice bran. Rice bran is the byproduct of milled rice which have been underutilized from many year in spite of it is a valuable source of nutrients (Kestin *et al.*, 1990). Rice bran is an excellent source of total dietary fiber ranging from 20-51 per cent (Saunders, 1990), which have many health benefits include increased faecal bulk and reduced blood cholesterol (Abdul and Yu, 2000). Defatted rice bran (DFRB) is rich in proteins, minerals and vitamins. Rice bran could be use as a supplement for bakery products like cookies, muffins, bread, crackers, pastries, pancakes (Barber, 1981) and in cookies up to 20 per cent (Singh *et al.*, 2000).

Due to increasing urbanization demand of convenience food like bread, biscuits have increased worldwide (Ogunjobi and Ogunwolu, 2010) so it acts as a good vehicle for fiber fortification especially in children. The present study was designed to made supplement wheat flour with fiber rich rice

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