Processing of raw banana into flour

Ripe banana is a prized fruit for all age groups because it is nutritious and easily available in all seasons at low cost. The limited information on the method of preparation of banana flour and its chemical composition motivated the researchers at G.B. Pant University of Agriculture and Technology, Pantnagar to process raw banana into flour using oven drying and freeze drying (lyophilization) techniques and to compare the chemical composition of two types of flours.

The chemical composition of both the flours was analyzed and the flour prepared by lyophilization was found superior to oven dried banana flour as it has higher crude protein (5.32%), crude fat (3.33%), energy (379 kcal), total ash (2.46%), calcium (44 mg/100mg), phosphorus (115.60 mg/100g), iron (25.50 mg/100g) and β-carotene (119.53 µg/100g) content. It had low amount of moisture (4.33%) and fibre (2.5%) content as compared to oven dried banana flour. The cost of oven dried banana flour was calculated out to be Rs.8.80/100g while the cost of lyophilized banana flour was calculated out to be Rs.8.90/100g. These flour can be used for the formulation of nutritious weaning mixes and supplementary foods. This can also be used for preparation of various food items like puris, parathas, cakes, toffees, etc. [Singh Pragya, Shukla Pushpa and Chauhan GS, Development and quality evaluation of banana flours prepared by oven drying and lyophilization, J Dairying Foods Home Sci, 2004, 23(3 & 4), 216-219].

Anti-atherogenic effects of egg yolk-enriched garlic supplement

It has been suggested that oxidation of low-density lipoprotein (LDL) plays an important role in the initiation and progression of atherosclerosis. Yamaji and others determined the anti-atherogenic effects of egg yolk-enriched garlic powder (EGP), which has been used as a traditional health-promoting food in southern Japan since ancient times, on LDL oxidation and oxidant stress-induced cell injury models. They confirmed that EGP inhibits copper-induced LDL oxidation in a dose-dependent manner. They also observed that pretreatment of EGP significantly suppressed the production of peroxides in HL60 cells and protected endothelial cells from hydrogen peroxide-induced cell injury. These findings might, in part, be ascribed to the bio-distribution of garlic compounds and egg yolk interaction, and suggest that EGP might be useful in the prevention of atherosclerosis [Yamaji Kazuyo, Sarker Krishna P, Abeyama Kazuhiro and Maruyama Ikuro, Anti-atherogenic effects of an egg yolk-enriched garlic supplement, Int J Food Sci Nutr, 2004, 55(1), 61-66].
Whole-grain intake and hypertriglyceridemic waist phenotype

Although dietary guidelines recommend increased intake of grain products to prevent chronic diseases, no epidemiologic data associate whole-grain intake with hypertriglyceridemic waist (HW) phenotype. Researchers at the Endocrine Research Center, Shaheed Beheshti University of Medical Sciences, Tehran, Iran carried out studies to evaluate the relation between whole-grain intakes and the prevalence of HW phenotype in adults in Tehran, Iran. Whole-grain intake, serum triacylglycerol concentration and waist circumference (WC) were assessed in a population-based, cross-sectional study of 827 Iranian subjects (357 men and 470 women) aged 18–74 years. HW phenotype was defined as serum triacylglycerol concentrations ≥ 150 mg/dL and concurrent WC ≥ 80 cm (men) and ≥ 79 cm (women). Mean (±SD) consumption of whole and refined grains was 93 ± 29 and 201 ± 57 g/d, respectively. Subjects in the highest quartile of whole-grain intake had a significantly lower prevalence of HW (29%) than did those in the lowest quartile (44%; P < 0.05). Conversely, those in the highest quartile of refined-grain intake had a significantly higher prevalence of HW (45%) than did those in the lowest quartile (27%; P < 0.05). After control for potential confounding factors, a significantly decreasing trend was observed for the risk of HW phenotype across quartiles of whole-grain intake (odds ratios among quartiles: 1.00, 0.95, 0.90, and 0.78, respectively; P for trend = 0.02). Higher consumption of refined grains was associated with better odds of HW phenotype (by quartile: 1.00, 1.38, 1.65, and 2.1; P for trend = 0.01). Thus, whole-grain intake is inversely and refined-grain intake is positively associated with the risk of HW [Ahmad Esmaillzadeh, Parvin Mirmiran and Fereidoun Azizi, Whole-grain intake and the prevalence of hypertriglyceridemic waist phenotype in Tehranian adults, Am J Clin Nutr, 2005, 81(1), 55-63].

Breakfast food colorants

Many commercial products are artificially coloured but fruits such as blueberries, strawberries, cranberries and grapes are the rich source of natural pigments responsible for red, blue and purple colour. Recent research reports have established their antioxidant properties, hence it seems desirable to include these pigments in the diet.

Nutrition scientists at Orono and Oregon State University, Corvallis have evaluated the stability and acceptability of blueberry and grape anthocyanins in extruded cereals. During experiment white corn meal with 10% sucrose was twin-screw extruded with either corn syrup, lowbush blueberry concentrate or concord grape-juice concentrate. Extrusion reduced anthocyanins but there was no change due to storage at room temperature for 3 months. Polymeric colour was higher in the blueberry cereal. The grape cereal was lighter and less red than the blueberry product. Bulk density was highest in the corn-syrup cereal. Overall acceptability was higher for the syrup and grape cereals. Sweetness and flavour acceptability were correlated with overall liking [Gamire ME, Chaovanalikit A, Dougherty MP and Briggs J, Blueberry and grape anthocyanins as breakfast cereal colorants, J Food Sci, 2002, 67(1), 438-441].
Dietary fats, teas, milk and nuts: potential functional foods for weight control

Functional foods are similar to conventional foods in appearance, but they have benefits that extend beyond their basic nutritional properties. For example, functional foods have been studied for the prevention of osteoporosis, cancer and cardiovascular disease. They have yet to be related to the prevention of obesity, although obesity is one of the major health problems today. The inclusion of foods or the replacement of habitual foods with others that may enhance energy expenditure (EE) or improve satiety may be a practical way to maintain a stable body weight or assist in achieving weight loss; such foods may act as functional foods in body weight control. Scientists from New York reviewed some foods that might be classified as functional foods for weight control because of their effects on EE and appetite—including medium-chain triacylglycerols, diacylglycerols, tea, milk and nuts. Only human studies reporting EE, appetite or body weight were discussed. When studies of whole food items were unavailable, studies of nutraceuticals, the capsular equivalents of functional foods, were reviewed. To date, dietary fats seem to be most promising and have been the most extensively studied for their effects on body weight control. However, the weight loss observed is small and should be considered mostly as a measure to prevent weight gain [St-Onge Marie-Pierre, Dietary fats, teas, dairy, and nuts: potential functional foods for weight control? Am J Clin Nutr, 2005, 81(1), 7-15].

Use of dairy by-products in biscuits

Incorporation of defatted soy flour (DSF) in biscuits has gained considerable interest due to its high nutritive properties. Further, the nutritional quality can be improved by incorporating liquid dairy by-products. Whey skim milk and buttermilk are the principal by-products in dairy industry. One of the most promising ways of utilizing liquid dairy by-products could be its inclusion in wheat flour for biscuit making. The researchers at Department of Foods and Nutrition, G. B. Pant University of Agriculture and Technology, Pantnagar investigated the effect of dairy by-products on sensory characteristics of soy-fortified biscuits. Addition of various proportions of DSF and dairy by-products in the formulation revealed that sensory scores of appearance of biscuits became significantly better at 25, 50 and 75% whey levels over control up to 10% DSF level whereas addition of skim milk did not improve the sensory scores for appearance of soy-fortified biscuits at all. With the increasing level of DSF (from 5 to 25%) and whey (from 25 to 100%) in the formulation, sensory scores for texture decreased. Texture of biscuits was not adversely affected up to 15% DSF level and 50% skim milk incorporation. Over 75% whey level flavour scores for biscuits reduced sharply. At 0, 25, 50, 75 and 100% whey levels, overall acceptability scores for biscuits showed no significant differences between soy flour levels of 0, 5, 10 and 15%. Acceptable quality biscuits can be formulated by incorporating 15% DSF and 75% whey and 50% skim milk separately without affecting the quality of biscuits adversely [Awasthi Pratima and Yadav MC, Incorporation of dairy by-products in soy-fortified biscuits: Effect on sensory characteristics, J Dairying Foods Home Sci, 2004, 23(3 & 4), 186-191].