



New and promising ornamentals

Acacia maconochieona has been introduced in Jodhpur from CSIRO, Australia and found to be a fast growing tree. It is a slender, umbrella-shaped beautiful ornamental tree, up to 10-15 m in height. Bright yellow-flowered inflorescences are globose about 4-6 mm in diam. pods are coiled, small 5-7 cm in length and 0.8-1.2 cm in width. It has potential to provide fodder, fuel and charcoal (Bhatnagar & Bhandari, *Indian Hort*, 2000, 45, 10).

Chincherinchee (*Ornithogalum thyrsoides* Jacq., Family Liliaceae), a native to South Africa

has been introduced in plains of North western India (Ludhiana, Punjab). It is a bulbous plant and produces long-lasting cut-flowers. The white, globose, tunicated bulbs are 4-5 cm thick as rootstocks. White cup-shaped florets with 6 petals and alternately long yellow stamens increase the beauty of gardens. This plant is suitable for border, rockery, pot culture, bouquets and flower arrangements. It is grown from November to May. Flowering lasts from mid March to April end and cut scapes last up to 15 days in vase water without any floral preservative. A good return can be obtained if this plant is grown at a commercial scale (Kumar & Bhardwaj, *Indian Hort*, 2000, 45, 21)

Buckwheat starch and its possible role in diabetes control

Identification of foods with respect to their blood glucose raising potential, that is, the glycemic index (GI) concept is now widely accepted in the possible control of diabetes. A low GI meal improves glucose tolerance at the next meal ingested 4 hour later.

A nutritional variable frequently linked to low-GI properties is resistant starch (RS). Thus foods with higher amounts of RS could be considered to be advantageous. Buckwheat (*Fagopyrum esculentum* Moench.) is one of the staple foods in Nepal, Bhutan, China and India. In Europe it is grown and consumed as an alternative crop. Mainly its flour is used for making pudding and other products. The buckwheat seeds contain a cereal like starchy endosperm. Its nutritional properties have been investigated by Skrabanja and his associates in Sweden. The experiment done on humans suggests that buckwheat has potential use in the design of foods with modified course of starch digestion. Boiled buckwheat groats (dehusked seeds or bread may reduce glycemia and insulin demand and hence influence the metabolism beneficially (Skrabanja *et al*, *J Agric Food Chem*, 2001, 49, 490).

Protein producing yeast from Kittul toddy

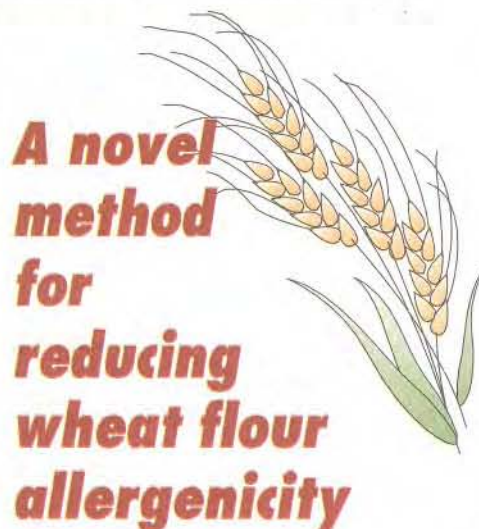
In traditional food technologies utilization of certain yeast, bacteria and algae is very common for modifying the dietary staples. Modification includes improved taste, texture and digestibility with or without any net increase in the protein content of the food stuff e.g. yogurt, curd, fermented fish, meat etc.

Fish-Tail Palm, *Caryota urens* Linn. is found in western and eastern coast, Orissa, Assam and Maharashtra and is also grown in gardens. It yields good amount of toddy which is used for making jaggery. Two strains of yeast, identified as *Candida tropicalis*, NCYC 2705 and NCYC 2699 have been isolated from toddy. The characteristics of these two strains has been studied for their possible utilization in single cell protein (SCP) production. Having a moisture content of 7%, ash content of 8% and crude protein more than 45%, these two strains conform to official specification for food yeast of USA.

For SCP production molasses from sugar industry has been found to be a suitable substrate and as the carbon source for growth of yeast. Protein content is an important criterion that is used to determine the suitability of micro organisms for SCP production. Both these strains contained appreciable amounts of cysteic acid 8.9% in NCYC 2705 and 10.2% in NCYC 2699 which is

normally found in low amounts in most of the other micro organisms. Both the strains contained more than 50% crude protein on dry weight basis. In addition to valuable proteins, these two yeast strains contain good levels of vitamins, especially those of the B group.

Thus these two strains of yeast, if grown more efficiently using molasses as the substrate are promising source for the production of single cell protein. As such these strains could be recommended for the production of animal feeds using cheaper substrate such as molasses [Wijeyaratne & Jayathilake, *J Natn Sci Found Sri Lanka*, 2000, 28(1), 79].



The number of food allergy cases is increasing day by day. Food allergy is the hypersensitivity caused by consuming particular foods or more precisely, their constituent allergens. In most cases these allergens are proteins. It is well known that allergens in proteinaceous foods such as eggs, milk, soybean and wheat often cause allergies when they are continuously eaten.

Wheat allergy pertains to the allergic reaction taking place in those who continuously consume wheat products including bread, noodles, cookies, cakes and even alcoholic beverages. The main symptom is a topic dermatitis that develops shortly after a wheat-based product has been eaten, usually resulting in skin eruption and itching.

Japanese scientist Watanabe and his team worked on a commercially available wheat flour and proposed a two-step method for reducing allergenicity:

- (i) using a carbohydrate decomposing enzyme and a protease to produce hypoallergenic flour that would be tolerated by most patients allergic to wheat.
- (ii) make wheat products from this hypoallergenic flour that has lost its original dough-forming property.

In this process wheat flour was mixed with a cellulase solution and the mixture was incubated at 50°C for 1 hour to hydrolyze the carbohydrate allergens. The hydrolysate was further incubated with actinase at 40°C for 1 hour while gently stirring to decompose the proteinaceous allergens. The product changed to a batter state that was difficult to process by the usual methods therefore gelatinization of the starch in the product and the addition of a surfactant were found to be beneficial for food processing. No allergenicity was reported in most cases when the product was evaluated by an enzyme-linked immunosorbent assay (Watanabe *et al*, *Biosci Biotechnol Biochem*, 2000, 64, 2663).

Reduce the allergenic proteins in rice

Cereal grains have sometimes been reported to cause food allergy. Several clinical studies have suggested that rice grains are responsible for severe atopic dermatitis in some adult patients. Some allergenic proteins, including 14-16 kDa allergens and 26 kDa globulin, have been identified and characterized structurally and immunochemically.

The Japanese scientists have investigated the effect of miso on allergenic proteins in rice. Miso is known to possess proteolytic activity which degrades soybean proteins, including a major soybean allergen into peptides and amino acids during fermentation.

Izumi and his team incubated polished rice grains at 37°C for 30-120 min. with 10 per cent miso solution. The amount of soluble proteins extracted from the rice grains with 1 M NaCl solution markedly decreased. It was found that 26 kDa globulin and 14-16 kDa allergens in the grains decreased to 15-60% during incubation with the miso solution, especially soybean-koji miso without any large change in the content of major insoluble proteins (Izumi *et al*, *Biosci Biotechnol Biochem*, 2000, 64, 2250).

Gluten-free spaghetti from Quinoa

The performance of mixtures of corn and quinoa (*Chenopodium quinoa* Willd.) flours in the manufacture of a gluten-free spaghetti-type product was studied by Luciana C Caperuto and the team in Brazil. The attempt was made to broaden the choice of food producers for coliac patients (those who have intolerance to certain cereals including wheat).

Quinoa grains are appreciated for contribution to good nutrition as a weaning food. In its native place it is known as poor man's staple and is popular in the form of soup, breads, pie and dessert. Besides having high contents of lysine and methionine, quinoa has gluten-free, nutritive properties. This makes it imperative to study this raw material for substitution of wheat in classical wheat products.

Quinoa grain, a pseudo-cereal is native to the high altitudes of the South American Andes. In India it was introduced in Simla, Himachal Pradesh and at IARI, New Delhi (Caperuto, *J Sci Food Agric*, 2000, 81, 95).

Emerging Soya Food Products

In the last decade interest in soya food products has enormously increased. The reasons being evidence from scientific studies and dissemination of the information to the general public. Soya foods can now be considered mainstream food items. In US soya food products market has grown by 45 per cent.

Initially soya products were considered as non-animal protein or as a meat substitute. But now soya-based beverages are pouring in the market. Soya being a balanced diet, that is also low in fat, low in saturated fat and low in cholesterol and its association with a reduced risk of cardiovascular disease, stimulated food companies to launch more than 300 new soya products in to the US market. Some of the items added recently in bakery shops are: breakfast cereals, meal replacement bars, dairy substitutes, meat substitutes, vegetable burgers, soya pasta, nutrition bars, soya drinks, soups, yoghurts and sandwiches [Bill Lavers, *Food Inged Anal Intern*, 2001, 23(1), 24].



Canned French Beans

In South Africa, White Kidney Beans or French Beans (*Phaseolus vulgaris* Linn.) are traditionally canned in tomato sauce and are sold as 'Baked Beans' and more than 80% of the beans produced are used by the processing industry. While processing, the beans are soaked, cooked and canned with tomato

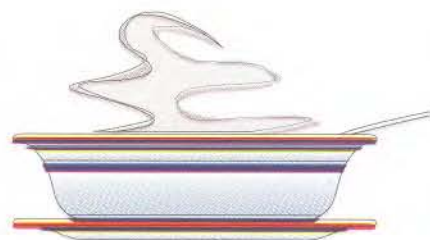
sauce to make the beans palatable, inactivate heat-labile anti-nutrients and permit the digestion and assimilation of protein and starch.

In India French Bean (Hindi- *Rajmah*) is grown as a vegetable and pulse crop (Lange & Labuschagne, *J Sci Food Agric*, 2000, **81**, 30).

Spirulina is good for reducing blood glucose level

The increased rate of diabetes mellitus throughout the world has made it imperative for dieticians to find out suitable diet which can help in reducing blood glucose level in patients. Spirulina – a microalga has been found to be a good food supplement which reduces the blood sugar level. A study was carried out on non-insulin dependent diabetic patients in the age group of 40-60 years. Four grams of Spirulina per day was given to them for a period of 60 days. This study confirmed that Spirulina has a hypoglycemic effect on non-insulin dependent diabetics (Anuradha & Vidhya, *Indian J Nutr Dietet*, 2000, **38**, 40).

Mix rice flour to reduce frying oil uptake



Rice flour when mixed with wheat flour, makes a dough that is more tender, consistent and moist and it reduces frying oil uptake up to 70 per cent. Louisiana based USDA-ARS Food Processing and Sensory Quality Research Unit found that doughnuts made from the formulations compare favourably in taste, texture and other sensory properties with traditional cake doughnuts. After trying many different combinations they conclude that wheat-rice doughnuts consume as little as 8 grams of oil in comparison to all wheat combination which takes 24-26 grams of oil [*Agric Res*, 2001, **49**(2), 23].

Improved varieties of sugarcane

Keeping in view the demand of cane in specific periods some of the improved varieties of sugarcane have been divided in three groups (i) early maturing varieties e.g. CC-7717; COJ-64, CO-56, COH-99, COH-92; (ii) medium maturing varieties : COS-767, COS-8436 and (iii) late maturing varieties, CO-1148 and COH-35. By growing these varieties it is observed that the mill or sugar factories can run at least for 5-6 months with a recovery rate of 9.5 per cent (*Tribune*, 30 April, 2001).