Cereals are an important part of diets for hypercholesterolemic patients. The scientists at Faculty of Veterinary Medicine and Faculty of Human Nutrition at Warsaw and others at Israel evaluated Oat and Amaranth meals effect on plasma lipid profile in rats fed cholesterol-containing diets. The purpose of the study was to compare oatmeal (*Avena sativa* Linn.) with two samples of amaranth (*Amaranthus hypochondriacus* Linn.) meals to determine whether this pseudocereal can be a substitute for allergic to cereals individuals. The total phenols of the samples were determined with the Folin–Chocalteu reagent, anthocyanins, and flavonoids spectrophotometrically. The antioxidant activities were estimated with nitric oxide scavenging radical (NO) and by β-carotene bleaching (β-carotene). It was found that the contents of different protein fractions, antioxidant compounds, and the antioxidant activities of oatmeal were significantly higher than those of the two amaranth samples. The results of kinetic reactions showed that samples differed in their capacities to quench these radicals, and oats have shown more antioxidant activity than amaranth.

The study concluded that oat and amaranth meals positively affect plasma lipid profile in rats fed cholesterol-containing diets. The degree of this positive influence is directly connected to the contents of the bioactive components and the antioxidant activities of the studied samples. It is suggested that amaranth could be a valuable substitute for hypercholesterolemic patients allergic to cereals [Czerwiski *et al*., *J Nutr Biochem*, 2004, 15(10), 622-629].

**Cholesterol-lowering effect of extruded Amaranth**

Amaranth is a staple food for centuries. Interest in amaranth has recently been aroused due to its high nutritive values. Its protein presents a high concentration of essential amino acids, especially lysine, which is a limiting amino acid in other crops. Amaranth has also a higher concentration of soluble fibre than many cereals, such as wheat, corn or oats.

Some studies conducted with amaranth suggest that it offers cholesterol-lowering effects in an experiment with rats. A reduction of 37 and 33% of total cholesterol was observed when animals were fed diets with whole amaranth and defatted amaranth, respectively.

Scientists at Brazil evaluated cholesterol-lowering effect of extruded amaranth (*Amaranthus caudatus* Linn. cultivar ‘Oscar Blanco’) and amaranth oil in hypercholesterolemic rabbits. During experiment hypercholesterolemic rabbits, obtained by a special diet, were divided into three groups, and each group was fed a different diet for 21 days. The diets were: extruded amaranth diet (EAD), diet with amaranth oil (AOD) and a control diet. Growth rates of rabbits were similar in all groups. After being fed the experimental diets, total cholesterol and LDL-C concentrations were lower in rabbits fed the EAD than in those fed the AOD or the control diet. Triglycerides and VLDL-C concentrations were approximately 50% lower in rabbits fed the EAD and the AOD than in rabbits fed the control diet. No significant differences were found among HDL-C concentrations of the three groups. Thus, the consumption of extruded amaranth reduces LDL and total cholesterol levels and may be another option to prevent coronary heart diseases [Andrea *et al*., *Food Chem*, 2002, 76(1), 1-6].
Use of glucose oxidase to improve breadmaking quality of rice flour

Rice flour has been found to be one of the most suitable cereal grain flours for preparing foods for celiac patients. The suitability of rice flour is attributed to its low levels of prolamins, since the peptides released from the breakdown of the prolamins act as toxins for individuals suffering from celiac disease. As a result cereals containing prolamins (wheat, rye, barley and oats) cannot be consumed and the only preventive measure is to keep the diet of the celiac patient as gluten free as possible. Since, rice possesses unique nutritional, hypoallergenic, colourless and bland taste properties, its use in baby foods, puddings and especially in development of foods for gluten intolerant patients has been increasing. However, the use of rice flour in breadmaking is still limited because rice proteins are unable to retain the gas produced during the fermentation process. The incorporation of hydroxypropylmethylcellulose (HPMC) in rice flour has made it possible to produce bread from rice flour with a specific volume comparable to that of wheat bread. The HPMC is able to provide the rice flour dough with the film forming and CO$_2$ entrapping properties resulting in a product with a high specific volume.

HPMC has been used at levels of 3.5-5.3% fb in rice bread formulas; therefore any reduction in its use could significantly affect the economics of rice bread production. But their relationship with cancer disease incidence is decreasing their use. Currently, the enzymes are replacing the chemical oxidants in numerous food applications. Scientists at Food Science and Technology Departments at Amritsar, India and Spain investigated improvement of the breadmaking quality of rice flour by glucose oxidase (GO)

The results revealed that glucose oxidase an oxidizing enzyme could be incorporated into the rice bread formula to improve bread quality. The GO brings about the crosslinking of rice protein, and in consequence, modification of the elastic and viscous behaviour of the rice dough. In the presence of GO the levels of HPMC required to produce acceptable rice bread can be lowered, economizing the process [Gujral & Rosell, Food Res Int, 2004, 37(1), 75-81].

Cookies made with deseeded grape pomace

Canett and others conducted study to evaluate deseeded grape pomace as a potential ingredient to elaborate some food products. Cookies were made with flour containing four levels of deseeded grape pomace (0, 5, 7.5 and 10%). Moisture, protein, ashes, fat, tannins and dietary fibre contents were determined in both the deseeded grape pomace and the cookies. Besides, colour, sensorial acceptability and biological evaluations of Net Protein Ratio (NPR), Apparent Digestibility (AD) and True Digestibility (TD) of protein were determined in the cookies. Substantial amounts of dietary fibre and ashes were found in both the deseeded grape pomace and the cookies. Total dietary fibre increased while adding more deseeded grape pomace. Cookies were well accepted as observed in the sensory evaluation, showing no significant differences among the four levels of deseeded grape pomace addition. The addition of deseeded grape pomace imparted a darker colour to the cookies. The dark colour was greater in the samples containing more fibre, which was indicated by the lower L colour value. Regarding nutritional analysis, the higher the deseeded grape pomace addition, the lower the NPR, AD, and TD values. The NPR was affected in greater degree, although these differences were not significant. It is possible to use deseeded grape pomace as an ingredient to make high fibre cookies with acceptable sensorial attributes [Canett et al., Arch Latinoam Nutr, 2004, 54(1), 93-99].
**Soy versus whey protein bars**

Although soy protein may have many health benefits derived from its associated antioxidants, many male exercisers avoid soy protein. This is due partly to a popular, but untested notion that in males, soy is inferior to whey in promoting muscle weight gain. A study carried out by Brown and others at USA provided a direct comparison between a soy product and a whey product. Lean body mass gain was examined in males from a university weight training class given daily servings of micronutrient-fortified protein bars containing soy or whey protein (33 g protein/day, 9 weeks, n=9 for each protein treatment group). Training used workouts with fairly low repetition numbers per set. A control group from the class (n=9) did the training, but did not consume either type protein bar. Both the soy and whey treatment groups showed a gain in lean body mass, but the training-only group did not. The whey and training-only groups, but not the soy group, showed a potentially deleterious post-training effect on two antioxidant-related parameters. Soy and whey protein bar products both promoted exercise training-induced lean body mass gain, but the soy had the added benefit of preserving two aspects of antioxidant function [Brown et al, *Nutr J*, 2004, 3, 22].

**Fruit**

**Antioxidant activity of pomegranate peel and seed extracts**

Antioxidant-rich fractions were extracted from pomegranate (*Punica granatum* Linn.) peels and seeds using ethyl acetate, methanol and water. The extracts were screened for their potential as antioxidants using various *in vitro* models, such as β-carotene-linoleate and 1,1-diphenyl-2-picryl hydrazyl (DPPH) model systems. The methanol extract of peels showed 83 and 81% antioxidant activity at 50 ppm using the —β-carotene-linoleate and DPPH model systems, respectively. Similarly, the methanol extract of seeds showed 22.6 and 23.2% antioxidant activity at 100 ppm using the β-carotene-linoleate and DPPH model systems, respectively. As the methanol extract of pomegranate peel showed the highest antioxidant activity among all of the extracts, it was selected for testing of its effect on lipid peroxidation, hydroxyl radical scavenging activity, and human low-density lipoprotein (LDL) oxidation. The methanol extract showed 56, 58, and 93.7% inhibition using the thiobarbituric acid method, hydroxyl radical scavenging activity, and LDL oxidation, respectively, at 100 ppm. Owing to this property, the studies can be further extended to exploit them for their possible application for the preservation of food products as well as their use as health supplements and neutraceuticals [Singh et al, *J Agric Food Chem*, 2002, 50(1), 81-86].

**Total, insoluble and soluble dietary fibre contents of Indian fruits**

Scientists at Food Chemistry Division, National Institute of Nutrition, Jamai-Osmania, Hyderabad evaluated total (TDF), insoluble (IDF) and soluble (SDF) dietary fibre contents of Indian fruits, which play an important role in human nutrition. TDF, IDF and SDF contents were analyzed by enzymatic and gravimetric method of AOAC. Among the fruits, the TDF and IDF contents ranged between 0.6 and 0.3g% in watermelon and 10.9 and 9.1g% in sapota, respectively. The SDF content ranged from 0.3g% in watermelon to 2.4g% in fig. The SDF as percentage of TDF was low in pear (7.0%) and high in sweet lime (51.8%), but in general, the majority of the fruits had 30%. Results indicate that fruits such as fig, mango, orange, papaya and sweet lime are rich sources of SDF, the component of TDF associated with a number of health benefits. [Punna Ramulu & Rao, *J Food Comp Anal*, 2003, 16(6), 677-685].