**FOOD (incl. Dairy, Fishery, Poultry and other Plant and Animal products)**

*NPARR* 3(3), 2012-0261, *Development of functional biscuit from soy flour & rice bran*

The research intended to explore the possibility of fortifying the soy flour and rice bran to formulate the functional biscuit which have the ability to improve the quality of food products due to various functional properties. Supplementation of wheat flour with soya and rice bran was tried at 10%, 15%, 20%, 25% level each. Prepared biscuit is subjected to physical, Sensory and nutritional analysis to evaluate the suitability of biscuit for consumption. The width of biscuit decreases from 44 to 36.2 with increasing in the level of substitution of composite flour of rice bran and soya. Similar tread shown by spread radio. However, biscuit thickness increases from 9.2 to 10.6 with increasing level of substitution. Nine-Point Hedonic Score System was used for sensory evaluation of prepared biscuit which is generally decreases with increasing the level of substitution. From overall acceptability rating, 15% soy flour +15% rice bran incorporated biscuit obtained the highest rating compare to other treatments. At p≤0.05, there were no significant difference between the control treatment and best rated supplemented biscuit (70:15:15) in general preference of sensory rating. Nutritional evaluation of best rated supplemented biscuit were protein (15.7%), fat (19.5%), fiber (2.2%), and moisture (3.6%). Thus supplementation of soy flour and rice bran at 15% level each, would improve the nutritional quality without adversely affecting the sensory parameters [Neha Mishra* and Ramesh Chandra (Department of Food Science & Technology 2 Warner School of Food & Dairy Technology Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad), *International Journal of Agricultural and Food Science* 2012, 2(1), 14-20].

*NPARR* 3(3), 2012-0262, *Nutritional and functional properties of Vicia faba protein isolates and related fractions*

The goal of this research was the characterisation of *Vicia faba* (broadbean) protein isolates and related fractions in order to determine whether this grain legume could be used for production of high quality protein products and other fractions rich in functional components. Alkaline extraction of the defatted seed flour, followed by precipitation at the isoelectric pH, yielded a 92% protein isolate with a high oil absorption capacity. The contents of the favism-inducing glycosides, vicine and convicine, in the isolate were reduced by more than 99% as compared to the original flour, although the amino acid composition was similar to that of the flour. Some of the by-products of protein isolate production may also be of interest from a nutritional and functional point of view. Thus, the oil resulting from hexane extraction of the flour is rich in unsaturated fatty acids, and polyphenols (resulting from extraction of the defatted flour with acetone) showed a high ABTS radical-scavenging activity. In addition, the solid residue (resulting from protein solubilisation) was high in fibre and showed good water absorption. These results show good nutritional and functional properties in *V. faba* protein isolates and related fractions, which may favour the revalorisation of this traditional bean crop [Javier Vioque*, Manuel Alaiz and Julio Girón-Calle (Instituto de la Grasa (C.S.I.C.), Avda. Padre García Tejero 4, 41012 Sevilla, Spain), *Food Chemistry*, 2012, 132(1), 67-72].

*NPARR* 3(3), 2012-0263, *Antioxidant activity of barley as affected by extrusion cooking*

Grit from different hulled barley cultivars was subjected to extrusion cooking and the effect of extrusion moisture and temperature on the antioxidant properties was studied. A significant decrease in the total phenolic content (TPC) and total flavonoid content (TFC) was observed upon
extrusion and a further decrease of 8-29% in TPC and 13-27% in TFC was observed when both the feed moisture and extrusion temperature were increased. The antioxidant activity (AOA) increased significantly upon extrusion and this increase was the highest (36-69%) at 150 °C and 20% feed moisture. The increase in feed moisture and temperature significantly increased the metal chelating activity. The reducing power decreased significantly upon extrusion as compared to their corresponding control samples. Extrusion lead to a greater increase in non-enzymatic browning (NEB) index however, increasing the moisture content of feed decreased the NEB index by 3-29% (at 180 °C) and 1-17% (150 °C), while increasing the temperature increased the NEB significantly [Paras Sharma, Hardeep Singh Gujral* and Baljeet Singh (Department of Food Science and Technology, Guru Nanak Dev University, Amritsar 143005, India), Food Chemistry, 2012, 131(4), 1406-1413].

NPARR 3(3), 2012-0264, Development and characterization of a novel biodegradable edible film obtained from psyllium seed (Plantago ovata Forsk)

In this study, the physical, thermal and mechanical properties of a novel edible film based on psyllium hydrocolloid (PH) were investigated. PH films were prepared by incorporation of three levels of glycerol (15%, 25%, and 35% w/w). As glycerol concentration increased, water vapor permeability (WVP), percent of elongation (E%) and water solubility of PH films increased whilst, tensile strength (TS), surface hydrophobicity and glass transition point (T_g) decreased significantly. At the level of 15% (W/W) of glycerol, PH films showed the lowest WVP values (1.16x10^-10 g H_2O m^-2 s^-1 MPa^-1), E% (24.57%) and water solubility (47.69%) and the highest values for TS (14.31 MPa), water contact angle (84.47) and T_g (175.2 °C). By increasing glycerol concentration, PH films became slightly greenish and yellowish in color but still transparent in appearance. This study revealed that the psyllium hydrocolloid had a good potential to be used in producing edible films with interesting specifications [Reza Ahmadi, Ahmad Kalbasi-Ashtari*, Abdulrasoul Oromiehie, Mohammad-Saeed Yarmand and Forough Jahandideh (Department of Food Science, Engineering and Technology, Faculty of Agricultural Engineering and Technology, Campus of Agriculture and Natural Resources, University of Tehran, P.O. Box 4111, Karaj 31587-77871, Iran), Journal of Food Engineering, 2012, 109(4), 745-751].

NPARR 3(3), 2012-0265, Effect of high pressure on fresh cheese shelf-life

The effect of high pressure (HP; 300 and 400 MPa for 5min at 6 °C) on physico-chemical, microbial, color, texture and sensorial characteristics of starter-free fresh cheeses stored at 4 and 8 °C was studied. Physico-chemical parameters considered were total solids, fat, total protein, pH, whey loss and water activity. The microbiological quality was studied, on cheeses stored at 4 and 8 °C, by enumerating aerobic mesophilic bacteria, lactococci, psychrotrophic bacteria, Enterobacteriaceae, Escherichia coli, molds and yeasts. Cheeses treated at 300 and 400MPa, stored at 4°C, presented a shelf-life of 14 and 21days, respectively, compared to untreated control cheese, which presented a shelf life of 7days. On the other hand, HP treatments modified the texture (more firm) and color (more yellow) compared to control cheeses. These changes were detected by instrumental and sensory analysis [K. Evert-Arriagada, M.M. Hernández-Herrero, B. Juan, B. Guamis and A.J. Trujillo* (Centre Especial de Recerca Planta de Tecnologia dels Aliments (CERPTA), XaRTA, TECNIO, MALTA Consolider, Departament de Ciència Animal i dels Aliments, Facultat de Veterinària, Universitat Autònoma de Barcelona, 08193 Bellaterra, Spain), Journal of Food Engineering, 2012, 110(2), 248-253].
Characterization of stipe and cap powders of mushroom (*Lentinus edodes*) prepared by different grinding methods

The effects of micronization methods, mechanical and jet millings, on the physico-chemical properties of mushroom (*Lentinus edodes*) powder were investigated in contrast to shear pulverization. The powders of dried mushroom cap and stipe were prepared to obtain six powders. Compared to shear pulverization, mechanical and jet millings effectively reduced particle size and brought about a narrow and uniform particle size distribution. With the same material, powders from mechanical and jet millings had higher values in soluble dietary fiber content, surface area, bulk density, water soluble index and nutrient substance solubility, but lower values in the angles of repose and slide, water holding and swelling capacities than shear pulverized powder. These indexes were tightly dependent on particle size with absolute coefficients beyond 0.8330. With the same grinding method, cap powders possessed higher values in water soluble index, swelling capacity, bulk density, protein and soluble dietary fiber than stipe powders [Zipei Zhang, Huige Song, Zhen Peng, Qingnan Luo, Jian Ming and Guahua Zhao*(College of Food Science, Southwest University, Tiansheng Road 1, Chongqing 400715, PR China), *Journal of Food Engineering*, 2012, **109**(3), 406-413].

Effect of an organic and conventional rearing system on the mineral content of hen eggs

In this study, the effect on mineral content of eggs from organic and conventional-housing systems was investigated. For this, random samples of 12 eggs were collected in both housing systems. Egg shells and edible portions were analysed for ash, Ca, P, Mg, Fe, Zn and Cu contents. The P and Zn contents of the edible egg portion were lower in the organic eggs than in conventional eggs. Mg content of the eggshell was higher in organic eggs while Zn content showed a marked decrease. As far as Ca, Fe and Cu values were concerned, these did not differ between the eggs from organic and conventional systems. The results showed considerable differences in mineral content between the eggs from the hens reared in organic and conventional systems [K. Küçükylmaz*, M. Bozkurt, Ç. Yamaner, M. Çınar, A.U. Çatlı and R. Konak (Erbeysi Poultry Research Institute, 09600 İncirliova/Aydın, Turkey), *Food Chemistry*, 2012, **132**(2), 989-992].

Effects of toasting on the carbohydrate profile and antioxidant properties of chickpea (*Cicer arietinum* L.) flour added to durum wheat pasta

The effects of the toasting process on the carbohydrate profile and antioxidant properties of chickpea flour were studied, along with the cooking behaviour, and antioxidant and nutritional properties of pasta enriched with the chickpea flour. The toasting process increased the resistant starch, insoluble dietary fibre and antioxidant properties of the flour. Addition of chickpea flour (raw and toasted) to durum wheat semolina changed the carbohydrate profile in the uncooked and cooked enriched pasta, especially with the toasted chickpea, and worsened the overall quality of the pasta. The increase in total phenolic content and total free phenolic acid content in the uncooked pasta was due to positive effects of addition of the chickpea flours, while the increase in the bound phenolics fraction in the cooked pasta was from the durum wheat, which was crucial for its high concentrations of ferulic acid. The increase in the free fraction of the Trolox equivalent antioxidant capacity in cooked pasta was consistent with the addition of chickpea [Clara Fares* and Valeria Menga (CRA, Centre for Cereal Research, S.S. 16, Km 675, 71100 Foggia, Italy), *Food Chemistry*, 2012, **131**(4), 1140-1148].