Anti-diabetic effects of *Cichorium intybus* Linn. in rats

The scientists at National University of Singapore, Singapore investigated the hypoglycaemic and hypolipidaemic properties of an ethanolic extract of Chicory, *Cichorium intybus* Linn. (CIE) which is widely used in India as a traditional treatment for diabetes mellitus. Male Sprague-Dawley rats aged 9 weeks (160-200g) were administered with streptozotocin (STZ, 50mg/kg) intraperitoneally to induce experimental diabetes. The Chicory whole plant was exhaustively extracted with 80% ethanol, concentrated at 40ºC using a rotavapor and freeze dried to get powder. Hypoglycaemic effects of CIE were observed in an oral glucose tolerance test in which, a dose of 125mg of plant extract/kg body weight exhibited the most potent hypoglycaemic effect. Moreover, daily administration of CIE (125mg/kg) for 14 days to diabetic rats attenuated serum glucose by 20%, triglycerides by 91% and total cholesterol by 16%. However, there was no change in serum insulin levels, which ruled out the possibility that CIE induces insulin secretion from pancreatic β-cells. In addition, hepatic glucose-6-phosphatase activity (Glc-6-Pase) was markedly reduced by CIE when compared to the control group. The reduction in the hepatic Glc-6-Pase activity could decrease hepatic glucose production, which in turn results in lower concentration of blood glucose in CIE-treated diabetic rats. Thus, the results support the traditional belief that *C. intybus* could ameliorate diabetic state [Pushparaj PN, Low HK, Manikandan J, Tan BKH and Tan CH, Anti-diabetic effects of *Cichorium intybus* in streptozotocin-induced diabetic rats, *J Ethnopharmacol*, 2007, 111(2), 430-434].

Vegetable

Physico-chemical, rheological and structural properties of fractionated potato starches

In an attempt to reveal whether behaviour differs between various granule size classes of potato starches, small (SGF), medium (MGF) and large (LGF) granule fractions were separated from the native starches of three potato cultivars and some of their physico-chemical and functional properties were studied by the scientists at Massey University, New Zealand and California State University, Los Angeles, USA. There was a significant variation in the granule size distribution of the native starches and their separated fractions, when studied using particle size analysis and scanning electron microscopy. The granule size ranges for LGF, MGF and SGF were 40-65, 20-40, and 1-20µm, respectively. The granule sizes in the fractions separated from the native starch of the cultivar ‘Kufri Ashoka’ were larger than in the corresponding fractions separated from the other two cultivars (‘Kufri Kunden’ and ‘Kufri Dewa’). For all three cultivars, LGF had higher amylose content and a lower swelling power than the corresponding MGF and SGF. The light transmittance and solubility of the native starches and their three fractions increased, while enzymatic digestibility decreased with the increase in granule size. Among the three fractions, pasting properties such as peak and final viscosities were observed to be lower for SGF, while peak viscosity temperatures were lower for LGF. The breakdown and setback in viscosity were observed to be highest for LGF and lowest for SGF, for all three cultivars. The lowest values of dynamic mechanical properties such as $G''$, $G'$, $\eta*$ and $\eta'$ were recorded for gels of native ‘Kufri Dewa’ starch and its fractions during frequency sweep testing on a dynamic rheometer. The textural attributes of the gels obtained from the
native starches and their fractions showed a relationship with their respective pasting behaviours. A significant and progressive change was observed in the texture of gels during 7 days storage at 4°C [Kaur Lovedeep, Singh Jaspreet, McCarthy Owen J and Singh Harmit, Physico-chemical, rheological and structural properties of fractionated potato starches, J Food Eng, 2007, 82(3), 383-394].

**Kinetics of osmotic dehydration and air-drying of pumpkins**

Kinetics of osmotic dehydration (OD) and effects of sucrose impregnation on thermal air-drying of pumpkin (*Cucurbita moschata Duch. ex Poir.*) slices were investigated by the scientists at Brazil. A simplified model based on the solution of Fick’s Law was used to estimate effective diffusion coefficients during OD and air-drying. In order to take into account shrinkage, average and variable thicknesses were considered. Pumpkin slices were dehydrated in sucrose solutions (40, 50 and 60%, w/w, 27°C). The effective water diffusion coefficients were higher than the sucrose and low diffusivity dependence with solution concentration was observed. Samples non-treated and pre-treated in 60% osmotic solutions during one hour were dried in a hot-air-dryer at 50 and 70°C (2 m/s) until equilibrium was achieved. Pre-treatment enhanced mass transfer during air-drying. Great volume reduction was observed in pre- and non-treated dried samples. Using variable thickness in the model diminished the relative deviations between predicted and experimental OD and drying data [Garcia Carolina Castilho, Mauro Maria Aparecida and Kimura Mieko, Kinetics of osmotic dehydration and air-drying of pumpkins (*Cucurbita moschata*), J Food Eng, 2007, 82(3), 284-291].

**Broccoli processing wastes as a source of peroxidase**

The researchers at California purified to homogeneity a peroxidase isozyme (BP) from broccoli stems (*Brassica oleracea* Linn. cv. ‘Maraton’) discarded from industrial processing wastes. BP specific activity was 1216 ABTS [2, 2’-azinobis (3-ethylbenzthiazoline-6-sulfonic acid)] units/mg, representing 466-fold that of crude extract. BP is a monomeric glycoprotein containing 16% carbohydrates, with a molecular mass of 49 kDa and an isoelectric point close to 4.2. From kinetic data it showed a two-substrate ping-pong mechanism and the catalytic efficiency measured as the rate-limiting step of free BP regeneration was $3.4 \times 10^6$ M$^{-1}$ s$^{-1}$. The ABTS $K_m$ value was 0.2 mM, which was about 20 times lower than that reported for acidic commercial horse radish peroxidase (HRP). Assessment of BP secondary structure showed 30% helical character, similar to HRP and cytochrome $c$ peroxidase. BP lost only 25% activity after 10 min of heating at 55°C and $pH$ 6; it was stable in the $pH$ range from 4 to 9 and showed an optimum $pH$ of 4.6 using ABTS as substrate. BP was active on substrates normally involved in lignin biosynthesis, such as caffeic and ferulic acids and also displayed good catechol oxidation activity in the presence of hydrogen peroxide. Reverse micellar extraction was successfully used as potential large-scale prepurification of broccoli peroxidase, achieving a purification factor of 7, with 60% activity yield. Thus the results revealed that stems from the broccoli processing industry have a high potential as an alternative for peroxidase purification [Duarte-Vázquez Miguel A, García-Padilla Sandra, García-Almendárez Blanca E, Whitaker John R and Regalado Carlos, Broccoli processing wastes as a source of peroxidase, J Agric Food Chem, 2007, 55(25), 10396-10404].

**Effect of traditional storage practices on potato quality**

The quality changes in organically produced potatoes tubers left *in situ* compared with tubers harvested and stored using traditional storage (i.e. storage in traditionally thatched houses) as practiced by small-scale organic farmers in South Africa were investigated by the researchers at School of Agricultural Sciences and Agribusiness, University of Kwa Zulu-Natal, Pietermaritzburg, South Africa. The objectives of the study were: (1) to compare the effect of traditional, *in situ* and controlled (7°C and 90% relative humidity) storage, on total sugar and starch content of organically produced...
Application of Kubelka–Munk analysis to the study of translucency in fresh-cut tomato

The development of translucency is a common alteration in the appearance of fresh-cut fleshy tissue after processing, which renders the product unappealing for consumption. It is of interest for the fresh-cut industry to be able to assess the development of translucency and then evaluate the effect of different procedures in its occurrence and intensity. Therefore, scientists at Brazil and Netherlands conducted two experiments in order to assess the development of translucency in fresh-cut tomato (*Lycopersicon esculentum* Mill. cv. ‘Belissimo’) during refrigerated storage. In the first one, tomato slices obtained from fruits at breaker and at red stage were stored at 5±0.5°C and monitored at regular intervals for 9 days. In the second one, slices obtained from fruits at the light-red stage were stored at 5±0.5°C, 9±0.7°C and 13±0.7°C for 4 days. Intact (control) fruits were stored at the same conditions and sliced immediately before the evaluations. In both experiments, translucency was assessed using Kubelka–Munk analysis and through visual evaluation using a scale from 0 to 4. The translucency of cut tomato slices increased during storage for cut fruits and remained practically constant for intact fruits, reflecting the effects of treatment observed visually. Additional experiments indicated that the removal of the locular gel combined or not with washing and drying the slice cut surface inhibited the development of translucency, indicating that the water soaking of the pericarp tissue is not a result of chilling injury. The $K/S$ (absorption coefficient/scattering coefficient) ratio increased during storage for cut fruits and remained practically constant for intact fruits, reflecting the effects of treatment observed visually. 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Effect of some technological processes on glucosinolate contents in cruciferous vegetables

Glucosinolates (GLS) are a group of natural non-nutrient compounds with important therapeutic, notably cancer-protective, properties. These compounds are present mainly in plants belonging to the Brassicaceae family. The largest and most commonly eaten plants of this family are the cruciferous vegetables of the *Brassica* genus. These vegetables are distinguished from other plants by their high GLS contents. Effects of blanching, boiling and freezing of selected cruciferous vegetables, viz. Brussels sprouts, white and green cauliflower, broccoli and curly cale on their GLS contents were determined by researchers at Poland. It was found that blanching and cooking of the vegetables led to
considerable ($P<0.05$) losses of total GLS, from 2.7 to 30.0% and from 35.3 to 72.4%, respectively. No systematic changes in total GLS were found in the vegetables that were blanched and frozen for 48h. In addition, the highest concentration of cancer-protective compounds, such as aliphatic and indole GLS were found in Brussels sprouts (sinigrin and glucobrassicin) and in broccoli (glucoraphanin) [Cieslik Ewa, Leszczyńska Teresa, Filipiak-Florkiewicz Agnieszka, Sikora Elżbieta and Pisulewski Paweł M, Effects of some technological processes on glucosinolate contents in cruciferous vegetables, *Food Chem*, 2007, **105**(3), 976-981].

**Effect of hydrogen peroxide on quality of fresh-cut tomato**

The effect of hydrogen peroxide ($H_2O_2$; 0, 0.1, 0.2 and 0.4 M) on selected nutritional quality of fresh-cut tomato was investigated by the scientists at University of Arizona, USA. Microbial population of tomato slices stored at 10°C and treated with $H_2O_2$ was lower than the control by 1- (0.2 and 0.4 M) and 5-log (0.4 M), 3 and 7 days after processing, respectively. Dipping fresh-cut tomato into $H_2O_2$ resulted in reduced phenolic and antioxidant levels after 7 days in storage by at least 5 and 20%, respectively, and produced an initial decline in vitamin C and lycopene. Change in colour values in the $H_2O_2$ treatments were associated with reduced carotenoid content. These results confirmed antimicrobial benefits of $H_2O_2$ but revealed a compromise in antioxidant and carotenoid contents of fresh-cut tomatoes [Kim HJ, Fonseca JM, Kubota C and Choi JH, Effect of Hydrogen Peroxide on Quality of Fresh-Cut Tomato, *J Food Sci*, 2007, **72**(7), S463-S467].

**Antioxidant activity of some leafy vegetables of India**

Eleven edible leafy vegetables of India, viz. *Asteracantha longifolia Nees*, *Bacopa monnieri* (Linn.) Pennell, *Bauhinia racemosa Lam.*, *Centella asiatica* (Linn.) Urban, *Chenopodium album* Linn., *Enhydra fluctuans* Lour., *Ipomoea reptans* (Linn.) Poir., *Moringa oleifera* Lam., *Nyctanthes arbor-tristis* Linn., *Paederia foetida* Linn. and *Trigonella foenum-graecum* Linn. were analyzed by researchers of Pharmacognosy Research Laboratory, Department of Botany, Calcutta University, Kolkata, India for their free radical-scavenging activity in different systems of assay, e.g. DPPH radical-scavenging activity, superoxide radical-scavenging activity in riboflavin/light/NBT system, hydroxyl radical-scavenging activity, and inhibition of lipid peroxidation induced by FeSO$_4$ in egg yolk. Total antioxidant activity was measured, based on the reduction of Mo(VI) to Mo(V) by the extract and subsequent formation of green phosphate/Mo(V) complex at acid pH. The extracts were found to have different levels of antioxidant properties in the systems tested. Considering all the activities, it is concluded that *I. reptans* has good activity amongst the eleven plant materials screened for their antioxidant properties. Lowest activity was found in *N. arbor-tristis*. Many flavonoids and related polyphenols contribute significantly to the total antioxidant activity of many fruits and vegetables. However, there was no correlation between antioxidant activity and total phenol/flavonoid content [Dasgupta Nabasree and De Bratati, Antioxidant activity of some leafy vegetables of India: A comparative study, *Food Chem*, 2007, **101**(2), 471-474].
Vacuum drying characteristics of eggplants

The vacuum drying characteristics of eggplant (*Solanum melongena* Linn.) were investigated by the scientists at Chiba University, Japan and drying experiments were carried out at vacuum chamber pressures of 2.5, 5 and 10 kPa and drying temperature ranging from 30 to 50°C. The effects of drying pressure and temperature on the drying rate and drying shrinkage of the eggplant samples were evaluated. The suitable model for describing the vacuum drying process was chosen by fitting four commonly used drying models and a suggested polynomial model to the experimental data; the effective moisture diffusivity and activation energy were calculated using an infinite series solution of Fick’s diffusion equation. The results showed that increasing drying temperature accelerated the vacuum drying process, while drying chamber pressure did not show significant effect on the drying process within the temperature range investigated. Drying shrinkage of the samples was observed to be independent of drying temperature, but increased notably with an increase in drying chamber pressure. A linear relationship between drying shrinkage ratio and dry basis moisture content was observed. The goodness of fit tests indicated that the proposed polynomial model gave the best fit to experimental results among the five tested drying models. The temperature dependence of the effective moisture diffusivity for the vacuum drying of the eggplant samples was satisfactorily described by an Arrhenius-type relationship [Long Wu, Takahiro Orikasa, Yukiharu Ogawa and Akio Tagawa, Vacuum drying characteristics of eggplants, *J Food Eng*, 2007, 83(5), 422-429].

Assessment of bulb pungency level in different Indian cultivars of onion

Onion (*Allium cepa* Linn.) is an important vegetable crop consumed primarily for its ability to enhance the flavour of other foods. The quality of onion depends on its pungency. While highly pungent onions are popular in India, less pungent ones are preferred in other countries. Estimation of pungency in bulbs has become necessary, as the popularity of low pungency onion has increased. At present there are no data on the variation in the pungency level of Indian varieties of onion. Therefore, an attempt was made by scientists working at Department of Botany, University of Pune, Pune and Nuclear Agriculture and Biotechnology Department, Bhabha Atomic Research Center, Mumbai, Maharashtra, India to evaluate the pungency level in different popular cultivars of onion in India, viz. ‘N-2-4-1’, ‘B-780’ and ‘Phule Safed’. Randomly selected bulb samples of the cultivars were analyzed for the content of pyruvic acid, total soluble solids and reducing, non-reducing and total sugars. The red variety ‘N-2-4-1’ showed higher level of pungency, while other two varieties were comparatively less pungent [Dhumal Kondiram, Datir Sagar and Pandey Raj, Assessment of bulb pungency level in different Indian cultivars of onion (*Allium cepa* L.), *Food Chem*, 2007, 100 (4), 1328-1330].

Shelf-life of minimally processed cabbage

Minimally processed vegetables (MPV) are fresh, raw vegetables processed in order to supply as a ready-to-eat or ready-to-use product and have a short shelf-life. The vegetables are usually trimmed, peeled, or cut if necessary, washed and sometimes disinfected. Neutral electrolysed oxidising water (NEW) is a novel decontamination method. Therefore, scientists at Belgium conducted a study to test the potential of NEW to extend the shelf-life of a MPV, namely shredded cabbage (*Brassica oleracea* var. *capitata* Linn.). Samples of shredded cabbage were immersed in NEW containing 40 mg/l of free chlorine or tap water (control) up to 5 min, and then stored under equilibrium modified atmosphere at 4 and 7°C.
Proliferation of aerobic mesophilic, psychrotrophic and lactic acid bacteria and yeasts were studied during the shelf-life. Also pH and sensorial quality of the samples as well as O₂ and CO₂ composition of the headspace of the bags was evaluated. From the microbial groups, only psychrotrophic counts decreased significantly (P<0.05) due to the effect of NEW, but the counts in treated samples and controls were similar after 3 days of storage at 4 and 7°C. Packaging configurations kept O₂ concentration around 5% and prevented CO₂ accumulation. pH increased from 6.1 to 6.4 during the shelf-life. No microbial parameter reached unacceptable counts after 14 days at 4°C and 8 days of storage at 7°C. The shelf-life of controls stored at 4°C was limited to 9 days by overall visual quality (OVQ), while samples treated with NEW remained acceptable during the 14 days of the experiment. The shelf-life of controls stored at 7°C was limited to 6 days by OVQ and browning, while that of samples treated with NEW were limited to 9 days by OVQ, browning and dryness. According to these results, a shelf-life extension of at least 5 days and 3 days in samples stored respectively at 4 and 7°C can be achieved by treating shredded cabbage with NEW which seems to be a promising method to prolong the shelf-life of MPV [Gómez-López Vicente M, Ragaert Peter, Ryckeboer Jaak, Jeyachandran Visvalingam, Debevere Johan and Devlieghere Frank, Shelf-life of minimally processed cabbage treated with neutral electrolysed oxidising water and stored under equilibrium modified atmosphere, Int J Food Microbiol, 2007, 117 (1), 91-98].

Reducing pesticide residues in fresh and processed vegetables

Scientists and food processors have long been interested in the effect of commercial processing on persistence of pesticide residues in food. A study conducted by scientists at Pakistan describes the effect of simple household processing techniques on reducing chlorpyrifos and 3,5,6-trichloro-2-pyridinol (TCP) residues in some vegetables. The effect of washing, peeling and cooking on residue levels of chlorpyrifos and TCP in winter vegetables: spinach (Spinacia oleracea Linn.), cauliflower (Brassica oleracea Linn.), potato (Solanum tuberosum Linn.) and summer vegetables: eggplant (Solanum melongena Linn.), tomato (Lycopersicon esculentum Mill.) and okra [Abelmoschus esculentus (Linn.) Moench] was determined. Analysis was carried out by capillary gas chromatography (DB-5MS capillary column) with mass selective detection. The samples were collected from trials conducted under controlled conditions as well as from the farmers’ field. In supervised field trials, the highest chlorpyrifos residue was found at raw stage in spinach (1.87 mg/kg) followed by okra (1.41 mg/kg) and eggplant (1.25 mg/kg). The lowest residue of chlorpyrifos was recorded in cauliflower (0.036 mg/kg). The chlorpyrifos residue reduced from 15 to 33% after washing, 65-85% post-peeling and cooking further lowered it from 12 to 48% in all the tested vegetables; while an increase in TCP concentration was observed during heat treatment. Out of 267 vegetable samples collected from the farmers’ field, 225 samples contained detectable residues representing 84% rate of contamination. About 6% of samples contained chlorpyrifos residues above maximum residue limits (MRLs). However, vegetable processing reduced the chlorpyrifos residue below the MRL. It is concluded that washing with water is necessary to decrease the intake of pesticide residues and cooking of vegetables helps to eliminate most of the pesticide residues [Randhawa M Atif, Anjum F Muhammad, Ahmed Anwaar and Randhawa M Saqib, Field incurred chlorpyrifos and 3,5,6-trichloro-2-pyridinol residues in fresh and processed vegetables, Food Chem, 2007, 103 (3), 1016-1023].
Developing medium-scale system for processing bitter leaf

Processed bitter leaf is a widely consumed vegetable in the tropics, hence, a medium-scale system was designed and fabricated by scientists of Agricultural Engineering Department, University of Dschang, Dschang, Cameroon for the processing of bitter leaf (Vernonia spp.) and similar vegetables. The machine powered by a 3kW electric motor is made of three compartments: the chopping section, the washing section and the spinning section. Tests were carried out to evaluate the capacity and the efficiency of each section of the machine. The chopping section has a capacity of 300kg of leaves per hour; reducing Vernonia leaves to 2.64mm mean size. The washing section has a capacity of 60kg of leaves per hour. In the spinning section, 20kg of processed leaves are processed in 8min giving a capacity of 150kg/h. At the spinning section, the moisture content of chopped and washed leaves decreased from 74.32 to 67.56%. Investigations on the nutritive quality of the processed vegetable indicated that there was a slight decrease and a slight increase in some nutritional parameters after mechanical processing. Compared with the manual method of processing, the machine reduced processing time by a factor of about 60 [Tangka JK and Penda PM, Development and performance evaluation of a medium-scale system for processing Bitter leaf, Biosyst Eng, 2007, 96 (2), 223-229].

Effect of cooking and addition of oil on bioaccessibility of carrots carotenes

Food processing and occurrence of dietary lipids are believed to be important and limiting factors for carotenoid bioavailability in humans. In a study conducted by researchers of Chemistry and Biochemistry of Pigments Group, Department of Food Biotechnology, Instituto de la Grasa, CSIC, Sevilla, Spain, the isolated and combined effects of household cooking and addition of olive oil on the bioaccessibility of carotenes from carrots have been investigated. Although thermal treatment during cooking showed a negative impact on the carotenoid content and a positive effect on the micellarisation of carotenes. Carotenes transferred to the digests were micellarised to a higher extent from cooked carrots (52%) than from crude carrots (29%). Addition of olive oil to carrot samples during cooking and before application of the in vitro digestion model had a marked positive effect on the release of carotenes, although the design of the model did not allow the correct estimation of this effect. The higher amounts of micellarised carotenes (80%) were found in the digest prepared from cooked carrots containing 10% olive oil. In general, the inclusion of olive oil during cooking increased the carotenoid extraction and micellarisation in a dose-dependent fashion. Although β-carotene and α-carotene were affected in a similar way by the cooking process, α-carotene appeared to be more efficiently incorporated into the micelles when olive oil was added to the samples. It is concluded that both processing and mainly lipid content (cooking oil in this case) significantly improve carotenoid bioaccessibility from carrots and therefore, may increase bioavailability in humans [Hornero-Méndez Dámaso and Mínguez-Mosquera María Isabel, Bioaccessibility of carotenones from carrots: Effect of cooking and addition of oil, Innov Food Sci Emerg Technol, 2007, 8 (3), 407-412].
Documented outbreaks of human illness associated with consumption of minimally processed produce have increased in recent years. The consumption of carotenoid-rich foods such as fruits and vegetables has been associated with a decrease of the risk of developing certain types of degenerative and chronic diseases. Processing of food and the interaction of carotenoids with lipophilic food components or ingredients may modify the amount of the released pigment from the food matrix and therefore, potentially increase or decrease their bioavailability. Therefore, researchers of Department of Food Science and Human Nutrition and Department of Animal Sciences, Colorado State University, Fort Collins, Colorado, USA evaluated the influence of modified treatments on inactivation of *Salmonella* during preparation, home-type dehydration (60°C, 6h) and storage of carrot slices. Inoculated (five strains, 7.8log cfu/g) slices were subjected to the following treatments: (i) untreated control, (ii) steam blanching (88°C, 10min), (iii) water blanching (88°C, 4min), (iv) blanching in a 0.105% citric acid solution (88°C, 4min), or (v) blanching in a 0.21% citric acid solution (88°C, 4min), dried for 6h at 60°C, and stored for up to 30days. Bacterial populations were reduced by 3.8-4.1, 4.6-5.1 and 4.2-4.6log cfu/g immediately following steam, water or citric acid blanching, respectively. After 6h of dehydration, total reductions were 1.6-1.7 (control), 4.0-5.0 (steam blanched), 4.1-4.6 (water blanched) and 4.9-5.4 (blanched in citric acid solution) log cfu/g. Populations continued to decrease throughout storage but were still detectable by direct plating at 30days on all samples except for those blanched in 0.21% citric acid. Results suggested that blanching carrot slices, particularly blanching in 0.21% citric acid, before drying enhances inactivation of *Salmonella* during home-type dehydration and storage. From the industrial point of view, a better understanding of the factors governing the release of carotenoids and other active components from vegetable foods is of great importance with the aim of optimizing the manufacturing processes [DiPersio Patricia A, Kendall Patricia A, Yoon Yohan and Sofos John N, Influence of modified blanching treatments on inactivation of *Salmonella* during drying and storage of carrot slices, *Food Microbiol*, 2007, 24(5), 500-507].

Effects of pressurized cooking on lotus root

Lotus, *Nelumbo nucifera* Gaertn., root is an aquatic vegetable, which is harvested in autumn in Taiwan. It contains abundant amount of protein, amino acids, dietary fibre, carbohydrates and vitamins C, B₁, and B₂. It is widely favoured by Asian people because of its hard and crispy texture, special aroma and mouth feel. It is often used to make different dishes, such as salads, pickled vegetables, stir-fried food and confections. The root can maintain its appearance and mouth feel after cooking at 100°C for over 60min. The researchers of Department of Food Science and Biotechnology, National Chung Hsing University, Taichung, Taiwan conducted studies and tried to elucidate relationships between pressurized cooking treatments (at 100°C for 1, 3, 5, 10, 20, 30, 60min and at 110, 121 and 132°C for 1, 3, 5, 10, 20, 30min, respectively) and changes in its chemical composition and texture. Results showed that the contents of hemicellulose and cellulose of lotus root decreased with increasing pressurized cooking temperature/duration while solid loss increased (*P*<0.05). The results could be used as reference for the lotus root industry, as well as an academic basis for future development [Chiang Po-Yuan and Luo Yue-Yu, Effects of pressurized cooking on the relationship between the chemical compositions and texture changes of lotus root (*Nelumbo nucifera* Gaertn.), *Food Chem*, 2007, 105(2), 480-484].