

ICCN Poster Presentations

Food processing and human health

Comparison of β -carotene, total phenolic, and antioxidant activity of jute mellow (*Corchorus olitorius L.*) leaf tea with green teas

A Moong-Ngarm*, N Bootprom and J Khunarak

Department of Food Technology and Nutrition, Mahasarakham University, Thailand.

In recent years, the health benefits of foods have gained much attention. Natural antioxidants in foods, such as β -carotene and phenolic compounds, are among the most interesting bioactive compounds. The protective influence of diets rich in fruits and vegetables against certain diseases have been attributed partly to their antioxidant content. Jute mellow or moroheiya leaves are extensively consumed as a nutritive and health vegetable in several countries because of their abundant content of carotenoids, vitamins and minerals. The fresh leaves of jute mellow were found to exhibit high antioxidant activity. However, the antioxidants β -carotene and total phenolics are greatly influenced by processing, yet no investigation on the impact of processing conditions on β -carotene, total phenolic, and antioxidant activity of the jute mellow leaves has been conducted. Production of dried leaves and consumption as tea is a popular process. The purpose of this study was to investigate whether the three different processing conditions (toasted at 55°C for 2 hours, blanched and then roasted at 70°C 45 min, and roasted at 70°C 45 min) of making teas affects the amount of β -carotene, total phenolic, and antioxidant activity. The study also compared the amount of these compounds with those of Japanese and Chinese green teas. The antioxidant activities of the tea extracts were evaluated using α - α -diphenyl-1-picrylhydrazil (DPPH) radical scavenging activity and the β -carotene bleaching methods. The total phenolic compounds and β -carotene levels were determined using the Folin-Ciocateu and spectroscopic methods, respectively. The results indicated that tea processing conditions significantly reduced the antioxidant capacity of jute mellow leaf tea extracts and β -carotene content of jute mellow leaf tea compared with fresh jute mellow leaves, whereas no effect on the level of phenolics. The β -carotene and total phenolic content of all jute mellow leaf tea were between 4200 ± 492 to $5200 \pm 212 \mu\text{g}/100\text{g}$ and 396.70 ± 2.05 to $475 \pm 4.81\text{mg}/100\text{g}$, respectively. All jute mellow leaf tea extracts exhibited 74.89 ± 1.20 to $80 \pm 1.23\%$ inhibition on β -carotene bleaching and 69.73 ± 2.16 to $75.38 \pm 0.06\%$ on DPPH radical scavenging activity, significantly lower than those of Japanese and Chinese green tea extracts (92.43 ± 0.13 and $88.79 \pm 0.43\%$, respectively).

The effects of uncooked powdered food on nutrient intake, body fat and serum lipid compositions in hyperlipidemic patients

Sung-Hye Park*, Jong-Hyun Han, Mi-Ran Jeong, Jeong-Woo Chon and Yu-Jin Song

Department of Herbal Resources, Professional Graduate School of Oriental Medicine,

Wonkwang University, Iksan, 570-749, Korea

This study was designed to investigate the effects of weight reduction and changes in serum lipid composition using a commercial uncooked powdered food (UPF) diet on 27 obese hyperlipidemic women over a period of 12 weeks. We just replaced common breakfast and dinner of the subjects with UPF. Their dietary intake status was evaluated by 24-hour recall method. Their body compositions were measured using body fat analyzer. Also we conducted hematological, clinical and lipid profile analysis of blood. The intake of energy, lipid and protein has significantly decreased as people started to take UPF, but the intake of vitamins and minerals has decreased except iron. Due to the energy intake decrease by taking UPF, weight, body fat and waist circumference significantly decreased. Among those who lost weight the percentage of body fat was high. We judged that the process of losing weight was successful in obese hyperlipidemic women. Serum HDL-cholesterol gradually increased and serum total, LDL-cholesterol, triglyceride levels showed gradual decrement. When obese hyperlipidemic women replaced two of three meals with UPF for 3 months, we were able to see useful changes like decrement of body fat and serum lipid. Complete assessment of UPF may be difficult based on these conclusions, but if people take a normal meal once and replenish iron from taking UPF twice a day, we assume that replacing balanced regular meal with UPF may not be a problem in nutritional status. Our results show that UPF are effective in the diet therapy of obese hyperlipidemic women.