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AUGUST 17-21, 2014 | MONTREAL, CANADA

IUFoST 17th WORLD CONGRESS OF FOOD SCIENCE AND TECHNOLOGY & EXPO

BOOK OF ABSTRACTS*

* Please note if you do not find a set of abstracts for a Concurrent Session, this is because we did not receive a set of abstracts for that session.

Methods: The methanol (MeOH) extract of each part of fresh *P. cuspidatum* were prepared, and the leaf MeOH extract was fractionated by liquid-liquid partition, octadecylsilane (ods) open column and reverse phase high performance liquid chromatography (HPLC). All samples were prepared at the concentration equivalent to 0.1 g of fresh weight of each plant part for assay. The tyrosinase activity was measured by the absorbance of the mixture containing sample, mushroom tyrosinase and L-dihydroxyphenylalanine (L-DOPA) at 475 nm after incubation. Lineweaver-Burk plot was used to identify the inhibitory mechanisms.
Results: The MeOH extract of rhizomes, stems, and leaves of *P. cuspidatum*, inhibited tyrosinase by 62%, 3%, and 63%, respectively. The water layer had the highest inhibitory activity (44%) in hexane, ethyl acetate, and water layers from leaf MeOH extract. Among the 0-100% MeOH fractions of ods open column, inhibitory activity was seen in 0, 20 and 40% MeOH fractions, and 40% MeOH fraction showed the highest activity (34%). From HPLC analysis of 40% MeOH fraction, fraction 1-6 were obtained, and fraction 1 had the highest activity (retention time = 0-6.00 min; 25%). However, this fraction contained a broad peak which appeared to be a large compound. After ultrafiltration of the water layer, the activity was seen in >10 kDa fraction (48%); therefore, anti-tyrosinase inhibitor was thought to be a macromolecular compound. As a result of Lineweaver-Burk plot, both the water layer and >10 kDa fraction showed non-competitive inhibitory activities.
Conclusion: The leaf of *P. cuspidatum* was found to have tyrosinase inhibitory activity, and the responsible compound appeared to be >10 kDa. Since most of known tyrosinase inhibitors are small molecules, such a large molecular inhibitor from natural sources is a new finding to cosmetic research. Purification and identification of this active compound are currently being researched.

Bioaccessibility of Provitamin A Carotenoids in Orange-fleshed Pumpkins Using the Coupled In Vitro Digestion/ Caco-2 Cell Model **UP43**

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Introduction and Objectives: Pumpkins (Cucurbita moschata Duch.) have variable coloration, ranging from yellow to orange, are usually good sources of pro-vitamin A and are widely consumed by the Brazilian population cooking by several different styles. Style and duration of cooking can affect both retention of the provitamin A carotenoids, as well as induce isomerization of all trans (E) of isomers of β-carotene (βC). Efficient transfer of provitamin A carotenoids from food matrices to intestinal absorptive cells, i.e., bioaccessibility, also is important to prevent vitamin A deficiency. The coupled in vitro digestion/Caco-2 cell uptake model has been proposed as a cost-effective, relatively high-throughput system for screening the accessibility of carotenoids from foods. The aim of this study was to evaluate the effects of cooking styles on the bioacessibility of βC in pumpkin.
Methods: The effects of three cooking styles on bioaccessibility of βC and α-carotene (αC) on three genotypes of pumpkin were analyzed. Pumpkin flesh was boiled (5 min), steamed (7 min) and boiled with sugar (5 min). Simulated oral, gastric and small intestinal digestion was performed as previously reported (Garrett et al., 1999) followed by the uptake of micellar carotenoids by Caco-2 human intestinal cells (Chitchumroonchokchai et al., 2004). Carotenoids were extracted from raw and cooked pumpkins, chyme, micelle fraction, test medium and cell pellets according to AOAC (1993) and Seo et al. (2005), with modifications.
Results: The efficiency of micellarization of provitamin A carotenoids was

quite low, ranging from 2.8-5.3% to βC and 4.0-5.9% to αC, and affected by cooking style only for βC (steamed>boiled with sugar>boiled). The efficiency uptake of micellar carotenoids by Caco-2 cells was 8.4 to 14.0% for βC and 9.27 to 13.9 for αC, for the micelle fractions from the digested genotypes and influenced by style of cooking in both (steamed and boiled with sugar > boiled). **Conclusions:** Despite the relatively low efficiency of micellarization of pro-vitamin A in orange-fleshed pumpkins, this plant food is a good source of pro-vitamin A because it contains a high concentration of these pigments. Further research is needed to elucidate the limiting factors for release of carotenoids from pumpkin matrix during digestion and the potential of other foods co-consumed with pumpkin to enhance the bioavailability of provitamin A carotenoids.

Hypoglycemic Activity of Ultrasonic-assisted Extracts of longan Pericarp as a Glucosidase Inhibitor **UP44**

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Introduction and Objectives: Longan fruit is rich in polyphenolic compounds. Longan pericarp and seed were treated as waste and discarded in the consumption and processing. The previous study validated that polyphenolic compounds included corilagin, epicatechin, gallic acid and ellagic acid with antioxidant activity, polysaccharides with anti-cancer and boost immune system efficacy in longan pericarp. In addition, longan seed extracts were proven to possess hypoglycemic effect. The purpose of this study is to evaluate longan pericarp extracts with functional effect, and enhance reutilization and economic value of longan fruit waste.
Methods: In this study, three kinds of longan pericarp extracts were screened by inhibiting α-amylase activity. The longan pericarp extracts with the better effect were treated with conventional and ultrasonic-assisted extraction. Ultrasonic-assisted extraction may enhance the extraction rate and hypoglycemic effect of longan pericarp extracts.
Results: The results showed that longan (*Dimocarpus longan* var. Shi Ya) pericarp was extracted by hot water and 50% ethanol with the best effect on inhibiting α-amylase to release glucose from starch, the reduction of release rate is 49.2% and 41.3% respectively. Hot water and 50% ethanol extraction rates of longan (*Dimocarpus longan* var. Fen Ke) pericarp were improved in 19.5% and 21.3% by ultrasound-assisted extraction. The total phenolic content in longan pericarp were increased by 18.8% and 20.9% after ultrasound-assisted extraction. Moreover, the extracts of hot water and 50% ethanol may restrain α-glucosidase and β-galactosidase activity, inhibition rate of the former is 64.4% and 55.7%; the latter is 60.8% and 49.0%. The hot water extracts were significantly enhanced the inhibition of the enzyme activity by ultrasound-assisted extraction. The inhibition rate of α-glucosidase and β-galactosidase compared with conventional extraction were increased by 10% and 12%, respectively.
Conclusions: Glucosidase inhibitor was applied to be as a hypoglycemic drug in amelioration of diabetes. In this study, the extracts of longan pericarp with inhibition on α-glucosidase activity may be as a glucosidase inhibitor for amelioration of diabetes. According to the results of this study, we speculated that phenolic compounds in longan pericarp may ameliorate diabetes. The active compounds and efficacy of hypoglycemic mechanism will be confirm in the further work.

Effects of Differents Treatments on the Phenolic Compounds Contents of the Brazilian Rice (Oryza sativa L.) Cultivars **UP45**

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