Oral Session | Food Function/Nutrition

[6-1015-A]Functional/Wellness Foods &Nutrition (2)

Chair:Rungarun Sasanatayart(Mae Fah Luang University, Thailand)
Fri. Sep 6, 2019 10:15 AM - 11:30 AM Hall A (Main Hall)

10:45 AM - 11:00 AM

[6-1015-A-03]Study of Static *In Vitro* Digestion of Japanese Pickled Plums on the Change of Polyphenols and Antioxidant Activity

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Japanese plum (Ume in Japanese; *Prunus mume*) is basically consumed in processed forms, e.g. a pickled and dried form (Umeboshi), liquored form (Umeshu), and concentrated form (Bainiku-ekisu). These products have been known to possess various medicinal benefits and have been frequently prescribed as a traditional folk medicine, owing to the fruit is a good source of organic acids, edible fiber, minerals, and phenolic compounds. Two types of pickled plums (PP) called kari-kari ume (hard type [HPP]) and umeboshi (soft type [SPP]) from commercial products in Japan were used and evaluated. These products are widely consumed with rice or processed to be puree and paste products. In this study, the static *in vitro* digestion was investigated with and without digestive enzymes (control [CT]) by sampling at undigested stage (G0), 1 hour after gastric digestion (G1), 1 hour after small intestinal digestion (G1I1) and 2 hours after small intestinal digestion (G1I2). The changes of polyphenols (total phenolics [TPC] and total flavonoid contents [TFC]) and antioxidant activities (DPPH- and ABTS-radical scavenging activities, ferric reducing antioxidant power [FRAP], and metal ion chelating [MIC] activity) were investigated during simulated *in vitro* gastrointestinal digestion. Increment of TPC and TFC was found during the simulated digestion in both of PP samples. In addition, higher antioxidant activities were found during simulated digestion of digested PP when compared to those of CT. Furthermore, higher ABTS and FRAP activities were observed in HPP during gastric stage than those SPP. Nevertheless, released antioxidant activities of SPP were better than those of HPP during the small intestinal stage, except MIC activity. Regarding the releasing of antioxidant activity may be related to cell structure. Thus, differences in the initial fruit maturity and production method of PP could enhance the releasing of antioxidant activities. In conclusion, these results provided information about developing new functional food products. Therefore, the study can be applied to develop a processing method to provide maximum bioactivity for the improvement of human well-being.

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