

Bioactive Compounds and Antioxidant Capacity of Instant Fruit Green Tea Powders

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Abstract : Green tea, mangosteen and pomegranate contain high levels of bioactive compounds which have antioxidant effects and great potential in food applications. The aim of this study was to produce and determine catechin contents, total phenolic contents, antioxidant activity and phenolic compounds of two instant fruit green tea powders which were green tea fortified with mangosteen juice and green tea fortified with pomegranate juice. Seventy percent of hot water extract of green tea was mixed with 30% of mangosteen juice or pomegranate juice, and then spray-dried using a spray dryer. The results showed that the drying conditions optimized for the highest total phenolic contents, catechin contents and antioxidant activity of both powders were the inlet air temperature of 170°C, outlet air temperatures of 90°C and maltodextrin concentration of 30%. The instant green tea with mangosteen powder had total phenolic contents, catechin contents and antioxidant activity of 19.18 (mg gallic acid/kg), 85.44 (mg/kg) and 4,334 (μmoles TE/100 g), respectively. The instant green tea with pomegranate powder had total phenolic contents, catechin contents and antioxidant activity of 32.72 (mg gallic acid/kg), 156.36 (mg/kg) and 6,283 (μmoles TE/100 g), respectively. The phenolic compounds in instant green tea with mangosteen powder comprised of tannic acid (2,156.87 mg/kg), epigallocatechin-3-gallate (898.23 mg/kg) and rutin (13.74 mg/kg). Also, the phenolic compounds in instant green tea with pomegranate powder comprised of tannic acid (2,275.82 mg/kg), epigallocatechin-3-gallate (981.23 mg/kg), rutin (14.97 mg/kg) and i-quercetin (5.86 mg/kg).

Keywords : green tea, mangosteen, pomegranate, antioxidant activity

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