

Atiya Ruangchakpet 2007: Effect of Indian Gooseberry Browning and Spanish Plum Maturity on Total Phenolics, Flavonoids and Antioxidant Activities. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Assistant Professor Tanaboon Sajjaanantakul, Ph.D 119 pages.

Browning reaction (0, 4, 6 and 8 hours) in Indian Gooseberry (*Phyllanthus emblica* Linn.) caused changes in active compounds and antioxidant activities. Total phenolics increased significantly ($p < 0.05$) at 7.4 and 17.8% for 4 and 8 hr browning (2,108.6 mg gallic acid/ 100 g fresh weight (FW)), respectively. Flavonoids content also increased at 3.6 and 10.3% for 4 and 8 browning (157.8 mg catechin/ 100 g FW), respectively. HPLC analysis showed that quercetin increased at 21.7 and 60.7% after 4 and 8 hr browning sample, respectively. The 8 hr browning had 4.5 mg quercetin/ 100 g FW. Total antioxidant capacity (TAC) as determined by ORAC method increased significantly ($p < 0.05$) from 78.2 to 98.3 μ mole Trolox equivalent/ 100 g FW after 6 hr browning. Quercetin had a good correlation with browning reaction in Indian Gooseberry ($r = 0.977$).

Spanish Plum (*Elaeocarpus hygrophilus* Kurz.) at 5 to 8 month after pollination was studied. The 6 month maturity had the highest total phenolics content at 345.8 mg gallic acid/ 100 g FW and flavonoids content at 49.0 mg catechin/ 100 g FW. The highest value of gallic acid as determined by HPLC was 103.6 mg/ 100 g FW at 6 month maturity. Quercetin and kaempferol could not be found in 5 to 8 samples. The highest antioxidant activity (TAC) from ORAC method and antiradical efficiency (AE) from DPPH method were found in 6 month maturity sample with a value of 24.4 μ mole Trolox equivalent/ 100 g FW and 0.014, respectively. TAC from ORAC method had a good correlation with flavonoids content ($r = 0.997$) and AE from DPPH method had a good correlation with total phenolics ($r = 0.992$).

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Thesis Advisor's signature

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