

Pongsatone Lorsuwan 2009: Effect of Maturity on Antioxidant Capacity and Antimicrobial Activity of Mango Peel Dietary Fiber (MPDF) cv. Mahachanok and cv. Namdokmai. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Mrs. Sasitorn Tongchitpakdee, Ph.D. 142 pages.

Antioxidant capacity, antimicrobial activity and phytochemical contents of mango peels dietary fiber (MPDF) prepared from mango cv. Mahachanok and cv. Namdokmai, which were harvested at 49, 77, 100 and 120 days after pollination, were investigated. Utilization of MPDF in Chinese sausage was also studied. Antioxidant capacity of samples were evaluated using 2, 2-diphenyl -1-picrylhydrazyl (DPPH) radical scavenging and 3-ethylbenzthiazoline-6-sulfonic acid (ABTS) radical scavenging assays. Antimicrobial activity of MPDF extracts were tested using agar dilution assay to determine minimum inhibitory concentration (MIC). The results showed that cultivar and maturity of mango had no effect on proximate compositions of MPDF except ash, which were increased as maturity increased. Total dietary fiber contents increased as maturity increased in both cultivars and MPDF prepared from mango cv. Namdokmai had higher total dietary fiber contents than those prepared from cv. Mahachanok at all maturity stages. MPDF prepared from mango cv. Mahachanok had higher antioxidant capacity, antimicrobial activity and total phenol contents than those prepared from cv. Namdokmai at all maturity stages ($p \leq 0.05$). The antioxidant capacity, antimicrobial activity and total phenol contents of MPDF decreased when maturity increased ($p \leq 0.05$). Total flavonoid, total carotenoid, beta-carotene and mangiferin contents of MPDF prepared from mango cv. Mahachanok were higher than those prepared from cv. Namdokmai and the contents were highest in MPDF prepared from mangoes harvested at 120 days in both cultivars ($p \leq 0.05$). Lignin contents in both cultivars were no significantly differences ($p > 0.05$) and MPDF prepared from mango at 120 days had the highest lignin content. The results also showed that addition of 10% MPDF in Chinese sausage could inhibit lipid oxidation and microbial growth. However, the efficiency was lower when compared to 30 ppm butylated hydroxyanisole (BHA).

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Thesis Advisor's signature

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