

**Title** Effect of maturity on antioxidant capacity,  $\beta$ -carotene content, and antimicrobial activity of mango peels (CV. Namdokmai)

**Author** Pongsathon Lorsuwan and Sasitorn Tongchitpakdee

**Citation** Abstracts, 14<sup>th</sup> World Congress of Food Science & Technology, October 19-23 2008, Shanghai, China. 721 pages.

**Keyword** mango; maturity; antioxidant

### Abstract

**Introduction:** Mango peels are by-products causing a serious disposal problem for mango processing industry. However, mango peels is a rich source of phenolic compounds which have antioxidant capacity and antimicrobial activity. The aim of this study was to study the effect of maturity on antioxidant capacity and antimicrobial activity of mango peels (CV. Namdokmai). **Materials and Methods:** Mangoes (CV. Namdokmai) harvested at 49, 77, 100 and 120 days were used in this study. The peels were removed, dried and extracted using total phenols (reducing property), 2,2'-azinobis(3-ethylbenzthiazoline-6-sulfonic acid) (ABTS) radical scavenging, and 2,2-Diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assays.  $\beta$ -carotene content of mango peel were analyzed using High Performance Liquid Chromatography (HPLC). Antimicrobial activity against microorganism was tested using agar dilution assay to determine minimum inhibitory concentration (MICs). **Results and Discussion:** The results showed that mango peels harvested at 49 days had the highest antioxidant capacity (total phenol, DPPH and ABTS radical scavenging assays) followed by those harvested at 77, 100 and 120 days, respectively. The inhibitory concentration (IC<sub>50</sub>) values of mango peels harvested at 49, 77, 100 and 120 days were 94.5, 100.7, 112.4 and 116.3 mg/L, respectively.  $\beta$ -carotene content of hexane extract of mango peels harvested at 120 days was highest (81.0+13.5 mg/100g dried weight). There were no significant differences in  $\beta$ -carotene content of mango peels harvested at 49, 77 and 100 days. The results of this study showed the mango peel extracts had high antimicrobial activity against both *B. cereus* and *L. monocytogenes* (Gram-positive), while only mango peels harvested at 49 days effectively inhibited *S. Typhimurium* strain 2486. MIC results also indicated that *L. monocytogenes* strain 130 and V7 were more sensitive to mango peel extracts than strain 101, 108 and Scott A.