

Nunticha Saisut 2012: Phenolic Compounds in Olive Leaves (*Olea europaea* L.) and Olive Leaf Tea. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Mrs. Sasitorn Tongchitpakdee, Ph.D. 116 pages.

The objective of this research was to study the phenolic compounds in olive leaves and olive leaves tea. The effect of extraction solvent and concentration of solvent on total phenolic content, total flavonoid content and antioxidant capacity (2, 2-Diphenyl-1-picrylhydrazyl (DPPH) assay) of olive leaves (*Olea europaea* L.). In addition, the effect of cultivars (cv. Hojiblanca, Arbequina, Manzanillo and Picual) and tea processing including green and black tea processes on major phenolic compounds, total phenolic content, total flavonoid content and antioxidant capacity. The extraction results of olive leaves (cv. Hojiblanca) with 40%, 60%, 80% and 100% (v/v) of ethanol or methanol showed that 80% ethanol extract had the highest total phenolic content, total flavonoid content and DPPH radical scavenging activity ($p \leq 0.05$). The results also showed that olive leaves cv. Hojiblanca had the highest total phenolic content, total flavonoid content and DPPH radical scavenging activity, followed by Arbequina, Manzanillo and Picual, respectively ($p \leq 0.05$). Cultivars also affected on major phenolic compounds in olive leaves. Olive leaves cv. Manzanillo had the highest oleuropein and luteolin 4'-glucoside contents ($3,709.3 \pm 105.6$ and 230.3 ± 5.0 mg/100 g DW basis), cv. Manzanillo and Arbequina had the highest luteolin 7-glucoside content (219.6 ± 7.7 and 210.0 ± 1.9 mg/100 g DW basis, respectively) and cv. Arbequina had the highest luteolin content (98.4 ± 1.4 mg/100 g DW basis). Furthermore, the results also showed that green tea making process could increase oleuropein, luteolin 7-glucoside and luteolin 4'-glucoside contents, total phenolic content, total flavonoid content and DPPH radical scavenging activity in olive leaf green tea ($p \leq 0.05$). In the study of olive leaf black tea processing, in which olive leaves were fermented at 25-35°C for 1-3 hours, olive leaf black tea fermented at 35°C for 1 hour had the highest oleuropein, luteolin 7-glucoside and luteolin 4'-glucoside contents, total phenolic content, total flavonoid content and DPPH radical scavenging activity ($p \leq 0.05$), whereas luteolin content could not be detected in olive leaf green and black tea.

Student's signature

Thesis Advisor's signature