



Tea Institute

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Research Project Comparative study on phenolic antioxidant extraction from *Camellia sinensis* var. *sinensis* and *assamica*

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Abstract

This study was aimed to compare extraction methods, solvents and duration for extraction of phenolic antioxidant from tea leaves. Varieties and leaves majority *Camellia sinensis* var. *sinensis* (China tea) and *Camellia sinensis* var. *assamica* (Assam tea) were also compared. The young tea leaves of both varieties presented higher extractable phenolic content and DPPH radical scavenging capacity than those of the mature leaves. Duration of 1, 2 and h seemed to be not affected to the extraction efficiency. Extraction with water provided the higher phenolic antioxidant than that of ethanol. Soaking with hot water (85 °C) method provided the greater amount of phenolic content and antioxidant capacity which were found the highest values of 109.78±2.02 mg gallic acid equivalent/g crude extract (GAE/g) and 243.07±5.64 mg trolox equivalent antioxidant capacity/g crude extract (TEAC/g), respectively. Shaking and microwave-assisted extractions mostly showed less efficiency when comparing to the soaking method, except for the young Assam tea leaves which exhibited the highest phenolic content of 108.86±6.45 mg GAE/g from the shaking with ethanol and the highest antioxidant of 176.58±4.32 mg TEAC/g from the microwave assistance methods. The China tea extract showed high correlation between the polyphenols and antioxidant capacity with linear regression of 0.77-0.79, whereas less correlation of 0.05-0.1 was found in the Assam tea.

Keywords Assam tea, antioxidant capacity, extraction, China tea, polyphenols