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EVALUATION OF IN VITRO ANTIOXIDANT POTENTIAL OF *Camellia sinensis* LEAVES EXTRACT

Pongchababnapa J*

Anglo Singapore International School, Thailand

*tonklar_p_2020@anglosingapore.ac.th

ABSTRACT

Oxidative stress has been identified as the root cause of the development and progression of several diseases as the disproportion of free radicals in the body leads to tissue or cell damage. Polyphenols are the most common antioxidant found in plants and are efficient in capturing oxidative free radicals. Antioxidants are substances found in the medicinal plants which may have a protective role to play in certain conditions such as heart disease, stroke and some cancers. By relaying on these benefits we have traced out the presence of antioxidant in *Camellia sinensis* leaves extract. This study aims to evaluate flavonoids content in *C. sinensis* extract and investigate antioxidant activities by using DPPH and ABTS radical scavenging capacity assay. The total flavonoid content of *C. sinensis* extract was determined and expressed as quercetin equivalents (QE)/g measured by an aluminium chloride colorimetric method. The results showed that the IC50 of *C. sinensis* leaves extract were 40.90 µg/mL ± 0.755 and 32.96 µg/mL ± 0.679 for DPPH and ABTS, respectively. *C. sinensis* extract at increasing concentration showed antioxidant activities as a concentration dependent manner. In the DPPH assay, vitamin C was used as a positive control, whereas Trolox was used as a positive control in the ABTS assay. In conclusion, *C. sinensis* extract consisted of a high amount of flavonoids content which possesses potent antioxidant activity. However further antioxidant activity assays using human cell lines such as SOD, ROS, and RNS scavenging assays as well as in vivo antioxidant experiments should be performed. This work could be beneficial as fundamental knowledge for further research into developing *C. sinensis* as pharmaceutical base product for free radicals-causing diseases such as cardiovascular or cancer diseases.

Keywords: ABTS assay, Antioxidant, *Camellia sinensis,* DPPH assay, total flavonoid content