



In vitro* ANTIOXIDANT ACTIVITIES OF DIETARY SUPPLEMENT CONTAINING *Curcuma longa* AND *Piper nigrum

Kirihettiliyanage R.T., Dammalage K.G., Liyanaarachhi G.D., Perera H.D.S.M. and Samarasekara R.*

Industrial Technology Institute, Colombo 7

radhika@iti.lk

ABSTRACT

Reactive oxygen species (ROS) and free transition metal ions cause oxidative damage to important bio-molecules resulting various diseases including cancer, neurological diseases, metabolic syndrome and accelerate aging. Medicinal plant extracts are rich in antioxidants that can protect human body from oxidative damage by scavenging ROS. *Curcuma longa* and *Piper nigrum* are well known medicinal plants used in various medicinal preparations in Ayurveda and traditional systems of medicine to improve complexion and digestion, reduce obesity, cholesterol and blood glucose levels, treat of hypertension, and as immunity and memory boosters. The objective of this study is to evaluate the anti-oxidant properties of dietary supplement containing rhizomes of *C. longa* and fruit of *P. nigrum*. Powder of dietary supplement prepared with *C. longa* and *P. nigrum* was extracted with ethanol following a cold extraction protocol. Ethanol extract was evaluated *in vitro* antioxidant activities by DPPH (1, 1-diphenyl-2-picrylhydrazyl) free radical scavenging, Oxygen Radical Absorbance Capacity (ORAC) assays, and for Total Phenolic Content (TPC), Total Flavonoid content (TFC) following standard protocols. Ethanolic extract of dietary supplement containing mixture of *C. longa* and *P. nigrum* exhibited high DPPH free radical scavenging activity having IC₅₀ value of $37.98 \pm 1.13 \mu\text{g/mL}$, but less than the positive control trolox ($5.29 \pm 0.09 \mu\text{g/mL}$). Extract showed an ORAC value of $164.94 \pm 1.80 \text{ mg TE/g extract}$, which was less than the green tea extract ($1662.21 \pm 0.02 \text{ mg TE/g extract}$). Furthermore extract showed moderate TPC ($92.40 \pm 1.80 \text{ mg GAE/g}$) and low TFC ($3.73 \pm 0.12 \text{ mg QE/g extract}$). The present study confirms the dietary supplement contains phenolic antioxidants that may have good therapeutic potential.

Keywords: *Curcuma longa*, *Piper nigrum*, antioxidant, dietary supplement