

In Vitro Antioxidant Activity and Nutritional Potential of Ceylon Almond (*Terminalia catappa*) Kernel

H.A.L.D. Jayawardhana*, D.D.D.H. Dewage, and C.S.K. Rajapakse

Department of Chemistry, University of Kelaniya, Kelaniya, Sri Lanka.

*dilakshika92@gmail.com

Natural products play an important role, especially in the modern pharmaceutical industry. Natural antioxidant consumption becomes a global trend due to its significant therapeutic effect. As many studies reported that the most commonly used synthetic antioxidants have adverse side effects like DNA damage, inflammation, skin damage, allergies, carcinogenesis, etc. synthetic antioxidants were replaced with natural alternatives. Therefore, the aim of the present study was to evaluate the *in vitro* antioxidant activity and nutritional potential of Ceylon almond (*Terminalia catappa*) kernel. First, chemical constituents of Ceylon almond kernels were cold extracted into ethanol. Then α , α -diphenyl- β -picryl hydrazyl (DPPH) free radical scavenging activity, total phenolic content (TPC) and total flavonoid content (TFC) of the ethanolic extract of Ceylon almond kernel were determined by DPPH assay, Folin-Ciocalteu method, and $AlCl_3$ colorimetric method respectively. Also, the powdered Ceylon almond kernels were used to determine their nutritional profile, according to AOAC methods. IC_{50} value of DPPH free radical scavenging activity of the ethanolic extract of Ceylon almond kernel was found to be $21.68 \pm 1.97 \mu\text{g/mL}$ and that of standard butylated hydroxytoluene (BHT) was found to be $12.30 \pm 0.79 \mu\text{g/mL}$. TPC and TFC values of Ceylon almond ethanolic extract were $20.52 \pm 1.20 \text{ mg}$ of gallic acid equivalent/g of the dry weight of the plant extract and $3.92 \pm 0.09 \text{ mg}$ of quercetin equivalent/g of the dry weight of the plant extract respectively. Results further revealed that Ceylon almond kernels are rich in crude protein ($24.9 \pm 0.3\%$) and crude fat ($43.1 \pm 0.2\%$). It also contains carbohydrates ($11.2 \pm 0.1\%$), crude fiber ($9.8 \pm 0.3\%$), moisture ($6.5 \pm 0.2\%$) and ash ($4.5 \pm 0.2\%$). As the Ceylon almond kernel contains health-promoting phytochemicals with antioxidant activity, it could be used as an additive in natural antioxidant formulations and as an economical source of nutrients.

Keywords: Antioxidants, DPPH, Nutritional Profile, TFC, TPC