

Evaluation of Functional and Nutritional Properties of *Nymphaea pubescens* Seeds

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The seeds of *Nymphaea pubescens* (Hairy water lily), which is abundant in dry zone of Sri Lanka was studied for a range of nutritional and functional properties. Proximate composition and total dietary fiber content (TDF) were determined using standard procedures. Boiled seeds were used to determine in-vitro starch digestibility rate. Antioxidant activity was studied for its free radical scavenging property on in-vitro models, 1,1-diphenyl-2-picrylhydrazine (DPPH) and 2-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid) (ABTS) by using methanolic extracts, and total polyphenolic (TPC) and flavonoid content (TFC) were estimated. Oil extracts from seed was studied for the fatty acid profile using gas chromatography (GC). Mineral content and heavy metal content was studied using ICP-MS and ICP-OES methods respectively. Moisture, fat, protein and ash were 7.28 ± 0.09 , 0.45 ± 0.05 , 7.66 ± 0.53 and 0.66 ± 0.02 respectively. According to the TDF content (9.09 ± 0.61), seeds are a rich source of dietary fibers. TPC and TFC were 338.67 ± 0.01 mg/g GAE and 40.29 ± 0.01 mg/g QE respectively. In-vitro antioxidant activities of seed extract against DPPH and ABTS was concentration dependent with IC₅₀ value 23.03 ± 0.03 and 17.03 ± 0.19 μ g/ml respectively. In-vitro starch hydrolysis rate was 87.82 ± 0.60 , thus can be categorized as a high glycemic index food. Experimental data showed that palmitic acid, stearic acid, oleic acid and linoleic acid were the major fatty acids. Seeds are rich source of manganese, magnesium and iron but there is no evidence for heavy metal contamination. *Nymphaea pubescens* seed showed promising in terms of fatty acids, dietary fiber, minerals and antioxidant activity.

Keywords: *Nymphaea pubescens*, antioxidant activity, in-vitro starch digestibility rate, dietary fiber