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Comparison of Antioxidant Activity of *Nigella sativa* and *Bunium bulbocastanum* using Different Extraction Methods

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Abstract

Nigella sativa and *Bunium bulbocastanum* are types of cumin seeds that have been used in traditional medicine in Sri Lanka. The aim of this study was to compare antioxidant properties of 85% ethanol and ethyl acetate extracts of *N. sativa* and *B. bulbocastanum*. Total phenolic content (TPC) and total flavonoid content (TFC) of the seeds were determined by using Folin-Ciocalteu method and Aluminium chloride method respectively. There was no significant difference between TPC levels of *N. sativa* ethanol extract compared to the ethyl acetate extract. However, TPC of ethyl acetate extract of *N. sativa* was significantly different when compared to *B. bulbocastanum*. Highest TPC was observed in *B. bulbocastanum* ethyl acetate extract 155.1 mg Gallic Acid Equivalent (GAE)/100 g while the lowest was observed in *N. sativa* ethanol extract 56.9 mg GAE/100 g. Results showed that there was no significant difference between the TFC of *N. sativa* and *B. bulbocastanum* extracts. Highest TFC was observed in *N. sativa* ethyl acetate extract 49.8 mg Rutin Equivalent (RE)/100 g while the lowest was observed in *B. bulbocastanum* ethanol extract 21.7 mg RE/100 g. Free radical scavenging activity of the seeds was analysed by using 2,2-diphenyl-1-picrylhydrazyl (DPPH) assay and results indicated that there was a significant difference between the extracts. Ferric Reducing Antioxidant Power (FRAP) values of *N. sativa* were not significantly different from FRAP values of *B. bulbocastanum*. Highest FRAP was observed in *B. bulbocastanum* ethanol extract 5.4 g Fe (II)/100 g. According to these results it is evident that there is a high antioxidant activity in ethyl acetate extract of both seeds.

Keywords: Total phenolics, Flavonoids, DPPH, FRAP