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Determination and comparison of the phenolic content, flavonoid content, and total antioxidant activities of Sri Lankan cultivars of Garlic (*Allium sativum*), Onion (*Allium cepa*), and Shallot (*Allium ascalonicum*)

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Consumption of antioxidant rich vegetables in a regular diet provides a healthy life. Garlic (*Allium sativam*), onion (*Allium cepa*), and shallot (*Allium ascalonicum*) are considered to be vital vegetables, with various uses throughout the world, ranging from raw vegetables for culinary purposes to ingredients for traditional and modern medicine. Furthermore, they have also been proposed as some of the richest sources of antioxidant compounds among the usually consumed vegetables. Due to the high demand for these vegetables in Sri Lanka, the production level is rising annually. So far there are no published articles on the antioxidant activity of garlic, onion and shallot cultivated in Sri Lanka. Hence, this research aimed to examine the total phenolic content, flavonoid content and antioxidant activity of Sri Lankan cultivated garlic, onion and shallot. The extraction of all three samples was carried out using 95% ethanol. The total phenolic and flavonoid content were determined using the Folin-Ciocalteu reagent and aluminium chloride, respectively. The total antioxidant activity was determined using the ammonium molybdate assay. Among the three samples, garlic exhibited a high phenolic content, flavonoid content and antioxidant activity followed by shallot and onion. The amount of phenolic content, flavonoid content, and antioxidant activity increased with increasing concentration of samples. All three samples showed a high total flavonoid content compared to the total phenolic content. Further, positive correlations were observed between the phenolic content and flavonoid content with antioxidant activity, respectively for all three samples. The total antioxidant activity of all three samples was highly influenced by the flavonoid content. Therefore, compared to Sri Lankan cultivars of onion and shallot, garlic can be considered to contain potential natural antioxidants.

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