

Phytochemical characterization and the determination of antioxidant activities of *Asparagus nelsii* root extracts

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Abstract

Medicinal plants produce important secondary metabolites such as flavonoids, tannins, saponins, alkaloids and many other compounds. These compounds are considered to be the chief plant constituent, because of their important role as antibacterial, anti-inflammatory and antioxidants agents. The aim of this study was to determine and characterize the phytochemicals present in water and methanol extracts of the roots of *Asparagus nelsii*, and conduct antioxidant tests of the extracts. Roots of *A. nelsii* were collected from Othika village in the Omusati Region and crude extracts were obtained with solvent extraction by reflux for 3 hours. Different screening methods from literature were employed to detect the phytochemicals present in the extracts. Characterization of the compounds was done using GCMS and the data was compared to the NIST library database for compound identification. Antioxidant test was conducted using the hydrogen peroxide scavenging assay with different concentrations of crude extracts. The phytochemicals present in the root extracts were determined to be flavonoids, saponins, tannins and phenolic compounds. One of the compounds that were successfully identified from the database by comparison of MS spectral data was Phenol-2methoxy-4-(1-propenyl). The water extract exhibited the highest antioxidant potential at a concentration of 110 µg/ml, and also exhibited higher higher antioxidant capacity compared to methanol extract. The results of this study show that the water and methanol extracts of *A. nelsii* can be used as accessible source of natural antioxidants.



Biography

Simeon A has completed his Hounours degree in Applied chemistry in 2019. His research was based on medicinal plants which is one of the interesting aspects in drug discovery. He has been a chemistry tutor in the department of Natural and Applied Sciences since his undergraduate in 2017. He is researcher at the Namibia University of Science and Technology in the same department.

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