



Abstract

Phytochemical Analysis, Antioxidant Potential and Radical Scavenging Activity of *Lomatium dissectum*: An Ancient Plant of North America[†]

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Abstract: Natural products have been used for their healing properties for many centuries and have been of great interest in the pharmaceutical and nutraceutical industries. Physical inactivity and the modern sedentary lifestyle, in which processed food has taken an important place, play an important role in oxidative stress induction. However, medicinal plants with antioxidant properties have been used since ancient times for their ability to treat or prevent several human ailments in which oxidative stress appears to be a cause. The aim of this research is to discover the antioxidant potential of *Lomatium dissectum*, a species of the carrot family (Apiaceae) commonly known as fernleaf biscuitroot. Lomatium roots has been used historically by Native Americans, mostly as a treatment for respiratory illness and bacterial and viral infections. This study aims to find out the phytochemical composition, to determine the total phenolic and flavonoid content, reducing potential, and free radical scavenging activity in ethanolic extract of Lomatium roots. Qualitative phytochemical screening revealed the presence of phenols, flavonoids, saponins, terpenoids, and steroids. Total phenolic and flavonoid contents were found to be 20.80 ± 5.76 mg GAE/g and 65.5 ± 15.8 mg QE/g dry weight, respectively. The plant extract showed a high reducing potential in a dose-dependent fashion, which indicated the ability of the plant to donate electrons to neutralize free radicals. The antioxidant activity was determined using DPPH, superoxide and hydroxyl free radical scavenging assays. The Lomatium extract displayed a concentration-dependent radical scavenging activity. At a concentration of 0.1 mg/mL, the plant extract scavenged DPPH and superoxide and hydroxyl radicals by 53.09%, 50.4%, and 33.84%, respectively. These results show that the Lomatium root extract possesses free radical scavenging activity and reducing potential and is rich in phenols and flavonoids. This is the first attempt to research the antioxidant potential of the Lomatium root. The results support traditional claims and pave the path for the discovery of antioxidant-rich nutrients that may help to prevent us from oxidative-stress-borne diseases.

Keywords: antioxidant; natural product; *Lomatium dissectum*; free radicals; oxidative stress



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