

Abstract

Plants are rich sources of phenolic and flavonoid compounds which are important natural antioxidants. Antioxidants today are important in terms of medicine because they reduce oxidative stress in the cells and therefore are useful in the treatment of many cardiovascular diseases and inflammatory diseases. *Chenopodium* is a herbal medicine (family, Chenopodiaceae) that is used for treatment of hemorrhoids, sore throats, eye and liver disorders.

The objective of this research was to study of phenolic and flavonoid compounds of three organs (leaves, stems and fruit) of 3 species of *Chenopodium* (*Ch. ficifolium*, *Ch. sosnovskyi*, *Ch. novopokrovskyanum*) in Sistan region. Phenolic and flavonoid contents were measured by Folin-Ciocalteu and Aluminum Chloride methods, respectively. In addition, the antioxidant activity was studied by DPPH radical-scavenging activity and ferric reducing/antioxidant power (FRAP) methods. Anthocyanin content evaluated by Wager method. The essential oil of was an *Ch. Sosnovskyi* fruit analyzed by GC / MS. In general, the results showed that phenol and flavonoids had the highest levels in the fruits and leaves of the three species, and the leaves of *Ch. Sosnovskyi* has a higher level of phenol and flavonoid than the other two species. The highest amount of anthocyanin was observed in leaves *Ch. ficifolium*. GC / MS analysis showed 56 compounds in leaves of *Ch. Sosnovskyi*. The highest amount of essential oil was Tetradecane (10.54%), Hexadecane (8.47), Dodecane (7.74), Octadecane (5.97), 3-Methyl-4-isopropylphenol (4.94) respectively. Also leaves of *Ch. Sosnovskyi* have the most antioxidant activity. In general, leaves of *Ch. Sosnovskyi* as rich source of phytochemicals and high antioxidant capacity, suggest for pharmaceutical use.

Keywords: Phytochemical compounds, Antioxidant activity, *Chenopodium*



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**Study on phytochemical composition and antioxidant activity of different
organs of 3 species of *Chenopodium***
(*Ch. ficifolium*, *Ch. sosnovskyi*, *Ch. novopokrovskyanum*)

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