

ABSTRACT

INVESTIGATION OF ANTIOXIDANT PARAMETERS AND ANTIMICROBIAL PROPERTIES OF GLASSWORT

(*Sarcocornia perennis* L.)

Merve TÜNEK

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Supervisor: Prof. Dr. Alev KARAGÖZLER

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Halophyte plants from seashore are used by humans for nutrition, medical purposes and high salt content. In this work, glasswort species collected from İzmir Karşıyaka seashore were subjected to two different drying methods (by lyophilization and air drying) and infusion extracts of the dried plant were investigated for their antioxidant and antimicrobial properties. DPPH radical scavenging activity, total phenolics, total flavonoids, total flavonols, reducing power, total antioxidant activity, superoxide radical scavenging activity, cupric ion reducing antioxidant capacity (ORAC) and hydroxyl radical scavenging activity. When compared, activities of the samples prepared via lyophilization were generally found higher. Additionally, activities of the extracts toward methods using synthetic radicals (i.e. DPPH, CUPRAC, ORAC) were found to be low whereas protection effects of the extracts towards radicals that exist in biological systems were high enough to compare with standard antioxidants. Moreover, as a measure of protection from lipid peroxidation, total antioxidant capacities of the extracts were found to be notably high. Total phenolics, total flavonoids and total flavonol contents of the extracts were also determined. In this study, antimicrobial activities of glasswort samples were also determined using agar well diffusion method and it was determined that some of the extracts demonstrated antimicrobial activity towards Gram (+) (*M. luteus* and *S. aureus*) and Gram (-) (*E. coli*) bacteria.

Keywords: Glasswort, DPPH, CUPRAC, ORAC, Total antioxidant activity, antimicrobial activity