

Evaluation of the Antioxidant and antimicrobial Properties of *Dorema aucheri* plant

Dear Editor,

Seven species have been reported in the genus *Dorema*, family Umbelliferae, in the flora of Iran, among which two are endemic: *D. aucheri* Boiss. and *D. ammoniacum* D. Don. (1) In Iranian traditional medicine, *Dorema aucheri* has been employed as stimulant, nervonic, antispasmodic, bronchodilator, expectorant, kidney stone repellent, emmenagogue and analgesic for visceral pain. This plant eaten as a green by some people in west part of Iran. *D. aucheri* in microliter scale to mice caused getting cancer dramatically. There are several reports on chemical composition, antihyperlipidemic and antihypercholesterolemia effects of this plant. (2) previous phytochemical investigations on this species revealed the presence of exudates flavonoides.(3)

Although thorough phytochemical and some evidence-based pharmacological studies have been carried out on the trunk and resin of *D. aucheri*, little is known about the antibacterial and antioxidant effects of ethanol extract of *D. aucheri*. The purpose of the present study was to elucidate these effects in vitro.

For this purpose *Dorema aucheri* Boiss. was collected from Oramanat area at Kermanshah province, west Iran (34°18'N, 47°3'E and 1420 m above sea level) in May 2010 and identified in Kermanshah Research Institute of Forests and Rangelands. ethanolic extract and essential oil of dried powdered aerial parts of plant were prepared by us. Essential oil components were investigated by Gc/Mass. Total phenolic compounds in extracts were determined spectrophotometrically using the Folin-Ciocalteu reagent. We use DPPH and FTC method for evaluation of Antioxidant activity assessed by using.

Antibacterial effects of ethanolic extract of this plant was analyzed by disc diffusion and

microdilution Broth methods.(4)

thirty six compounds were identified in the leaf oil of the plant, representing about 99.86% of the total oil with Curzerene (18.7%), Spathulenil (6.68%) and Isohibaene (6.16%) and Gemberen (6.66%) as the major constituents. (table.1) extract exhibited a notable dose dependent inhibition of the DPPH activity, with a 50% inhibition (IC_{50}) at a concentration of 0.2 mg/ml.(5) we use Folin – ciocalteu method for determination of total phenolic content in the ethanol extracts of *D. aucheri*.(5) (Fig1) The content of phenolic compounds was 38.42 mg.

Table.1: Main Components of *Dorema aucheri* essential oil identified by Gc and GC/MS

NO	RT	%	NAME	KI
1	54.99	3.98	β -Guryunene	1498.1
2	44.66	18.37	Curzerene	1516
3	48	6.68	Spathulenol	1600
4	49.94	7.72	α - Eudesmol	1650
5	53.34	7.58	Valeranone	1749.2
6	58.59	6.169	Isohibaene	1891
7	59.85	6.66	Gembrene	1929
		99.86	sum	

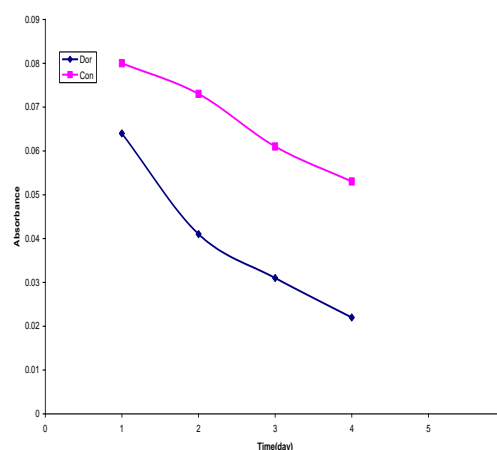


Fig.1: Results showed this plant could be candidates for some of its biological activities and therefore for its therapeutic use

Plant extracts and plant-derived antioxidant compounds potentiate body's antioxidant defense, they are antioxidants of choice because of their lower toxicity and side effects over the synthetic ones. Also, they are relatively cheaper and are easily accessible. The extract of *D. aucheri* has shown to possess in vitro antioxidant and antibacterial activities. The reducing ability of a compound generally depends on the presence of reductions, which exhibit antioxidant activity by breaking the free radical chain through donation of a hydrogen atom. Further studies need for the isolation and characterization of the active principles component for these activities in this plant.

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Keywords: *Dorema aucheri*, antioxidant property, antimicrobial property

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