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COMPOSITION OF THE ESSENTIAL OILS OF *INULA VISCOSA, I.GRAVEOLENS* AND *I. HELENIUM* SUBSP. *TURCORACEMOSA*

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SUMMARY

Steam distilled essential oils from aerial parts of *Inula viscosa, I. graveolens* and from rhizomes of *I. helenium* subsp. *turcoracemosa* (Asteraceae) were analysed by GC/MS. The main components of essential oils were identified as carvacrol (18.6 %) in *I. viscosa*, L-borneol (63.96 %) in *I. graveolens* and alantolactone (59.6 %) in *I. helenium* subsp. *turcorasemosa*.

ÖZET

Inula viscosa ve *I. graveolens* türlerinin topraküstü kısımlarından, *I. helenium* subsp. turcoracemosa türünün de rizomlarından su buharı distilasyonu ile elde edilen uçucu yağlar GC/MS ile analiz edildi. Bu uçucu yağların ana bileşenleri, *I. viscosa*'da carvacrol (% 18.6), *I. graveolens*'de L-borneol (%63.96) ve *I. helenium* subsp. *turcoracemosa*'da alantolacton (%59.6) olarak tesbit edildi.

Key Words: *Inula viscosa, Inula graveolens, Inula helenium* subsp. *turcoracemosa,* essential oils.

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Table 5: Main components of essential oil of *I. helenium* subsp.*turcoracemosa.*

RT	Compound	Relative Percentage
9,67	terpinene-4-ol	0,50
9,84	α-terpinene	0,47
10,37	citronellol	0,20
11,48	carvacrol	0,51
12,34	α-longipinene	0,07
12,81	β-elemene	1,96
12,99	cyperene	1,33
13,12	epizonaren	0,14
13,19	β-caryophyllene	0,33
13,50	β-santalene	0,22
13,68	aromadendrene	0,35
13,95	alloaromadendrene	0,57
14,01	eremophylene	1,04
14,11	bisiclo germacrene	0,80
14,23	germacrene A	0,72
14,30	cis-γ-bisabolene	0,07
14,39	calarene	0,13
14,59	cis-α-bisabolene	0,08
18,38	alantolactone	59,16
18,71	isoalantolactone	7,03
18,79	1-deoxiivangustin	8,42

Riebau et al. reported, that the main components of the essentials oil obtained from aerial parts of *I. viscosa* growing wild in Antalya were carvacrol, p-cymene, α-pinene, β-myrcene, γ-terpinene, linalool, menthol, borneol, thymol and β-caryophyllen (8). In the present study, 5 of 30 components of essential oils of *I. viscosa* from Izmir were identified as carvacrol, L-borneol, thymol, caryophyllene oxide and nerolydol. The results of our analysis are largely in agreement with those reported by Ribeau et al. In both investigations, main component of *I. viscosa* essential oils was carvacrol.

13 of 28 components were identified from the essential oil of *I. graveolens* and the main components were determined as L-borneol, thymol, phenylethyl alcohol,

myrtenol, endobornyl acetate, geranyl isovalerat and β-caryophyllene. Comparison of this essential oil with commercial *I.graveolens* essential oil from Corsika origin has shown that L-borneol was the main component of Izmir origin and bornylacetate was the main component in the other one. Besides them, thymol, phenylethyl alcohol, myrtenol, endobornyl acetate, geranyl isovalerat and β-caryophyllene were not detected in *I. graveolens* essential oil from Corsica origin (9). 21 of 57 components were identified from *I.helenium* subsp.*turcoracemosa* initially. Main components were found as alantolactone, 1-deoxiivangustin, isoalantolactone, β-elemene, cyperene and eremophylene. Comparison of this essential oil with *I.helenium* essential oil from German origin, has shown that both of them contains as main components terpinen 4-ol, β-elemene, germacren A, β-caryophyllene, aromadendrene, alloaromadendrene, eremophylene, isoalantolacton, 1-deoksiivangustin and alantolacton. But α-terpinene, citronellol, carvacrol, α-longipinene, epizonaren, β-santalene, bisiclo germacrene, cis-α and γ bisabolene, and calarene were not detected in I helenium essential oil from German origin (9).

In conclusion, according to all of these analysis it seems that the essential oils investigated can be used also commercially.

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