

Smyrniun cordifolium Boiss

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Antibacterial activity of essential oil and different extracts from Smyrniun cordifolium Boiss

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Objectives: The Smyrniun cordifolium Boiss, is a biannual plant belongs to Umbeliferae family that growing wildly in West and South West mountains of Iran and have nutrient and medicinal usages in these regions. **Methods:** This plant was collected in post-flowering stage from mountains of Khoramabad. The antibacterial effects of essential oil and aqueous, methanolic, ethanolic and etheric extracts of different parts of studied plants against Staphylococcus aureus, Shigella flexneri, Salemonella typhi, Staphylococcus epidermidis, Staphylococcus saprophiticus, Psuedomonas aeruginosa and E. coli bacteria were studied by digging hole and measuring diameter of grows inhibiting ring. In this study the relevant dissolver were used as control and gentamicine antibiotic was used for comparision. **Results:** The results showed that aqueous extracts except extract from leaves of Smyrniun which has clear effect on Shigella. In other cases didn't show remakable antibacterial effects while ethanolic and etheric extracts showed desirable antibacterial activity in the most of study microorganisms. **Conclusion:** In general, the antibacterial activity of essential oil and different extracts tested were more pronounced of S. cordifolium against of Gram-positive bacteria than against Gram-negative bacteria. This generally higher resistance among Gram-negative bacteria could be ascribed to the presence of their outer phospholipidic membrane, almost impermeable to lipophilic compounds. Antibacterial activity of the essential oil of this plant was probably attributed to large content of oxygenated sesquiterpens especially Curzerene and Curzerenone.

Key words: Antibacterial activity, Plant, Essential Oil , Extract.

Smyrniun cordifolium :

Curzerenone Curzerene

Smyrniun cordifolium :

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Deans& Ritchie

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Smyrnum

Smyrnum cordifolium Boiss.

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Smyrnum

S. cordifolium

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Archive of SID

Achillea wihelmsii, Cybopogon oliveri

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Thymus numidicus

Rotary-Evaporator

Stachys

) S. aureus, S. saprophyticus, Shigella flexneri

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Staphylococcus epidermidis PTCC1349, Staphylococcus
saprophyticus PTCC1379, Staphylococcus aureus PTCC1113,
Pseudomonas aeruginosa 1310, Salmonella
Shigella flexneri Escherchia coli PTCC1330 typhi PTCC1185
PTCC1234

S. aureus

S. saprophyticus Shigella flexneri, S. epidermidis

Muller-Hinton

(

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S. aureus S. epidermidis S. aureus

μL

(

)

(10 μg)

S. aureus

°C

) S. epidermidis Shigella flexneri S. saprophyticus

SPSS

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%

E. coli, Salmonella typhi, Pseudomonas aeruginosa

Pseudomonas

aeruginosa

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Smyrniun cordifolium

Shigella flexneri

S. aureus, S. saprophyticus, S. epidermidis

) S. aureus

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() *Smyrniun cordifolium* :
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	Staphylococcus aureus	Staphylococcus epidermidis	Staphylococcus saprophyticus	Shigella flexneri	Salemonella typhi	Escherchi coli	Pseudomonas aeruginosa
	32 ^A	21 ^C	20 ^{CD}	0 ^R	10 ^{KL}	8 ^{MN}	8 ^{MN}
	11 ^{JK}	0 ^R	3 ^Q	10 ^{KL}	0 ^R	0 ^R	0 ^R
	0 ^R	0 ^R	0 ^R	0 ^R	0 ^R	0 ^R	0 ^R
	0 ^R	0 ^R	0 ^R	0 ^R	0 ^R	0 ^R	0 ^R
	11 ^{JK}	22 ^C	21 ^C	16 ^{EFG}	21 ^C	15 ^{FGH}	12 ^{IJ}
	0 ^R	20 ^C	22 ^C	16 ^{EFG}	15 ^{FGH}	12 ^{IJ}	15 ^{FGH}
	12 ^{IJ}	11 ^{JK}	16 ^{EFG}	22 ^C	14 ^{GHI}	13 ^{HJ}	13 ^{HJ}
	11 ^{JK}	17 ^{DEF}	12 ^{IJ}	18 ^D	0 ^R	11 ^{JK}	10 ^{KL}
	11 ^{JK}	16 ^{EFG}	12 ^{IJ}	15 ^{FGH}	11 ^{JK}	0 ^R	0 ^R
	10 ^{KL}	17 ^{DEF}	21 ^C	20 ^{CD}	10 ^{KL}	7 ^{NO}	0 ^R
	17 ^{DEF}	14 ^{GHI}	15 ^{FGH}	5 ^P	7 ^{NO}	9 ^{LM}	11 ^{JK}
	35 ^A	17 ^{DEF}	20 ^{CD}	5 ^P	10 ^{KL}	11 ^{JK}	14 ^{GHI}
	17 ^{DEF}	25 ^B	15 ^{FGH}	12 ^{IJ}	0 ^R	3 ^Q	3 ^Q
	12 ^{IJ}	20 ^{CD}	15 ^{FGH}	12 ^{IJ}	14 ^{GHI}	15 ^{FGH}	15 ^{FGH}
Gram +/-	+	+	+				

Staphylococcus aureus

Staphylococcus epidermidis

Shigella flexneri

S. cordifolium

Curzerene

Curzerenone

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S. cordifolium

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