

Bioactive compounds from medicinal plant extracts with antifungal and antibacterial activity

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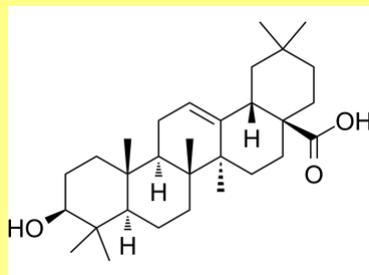
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Infectious diseases and antimicrobial resistance are problems that require continuous search for new sources of bioactive substances. Terpenoids, phenolics, steroids, alkaloids are secondary metabolites that exhibit a broad spectrum of pharmacological activity, including antimicrobial.

Extracts of Amaryllidaceae, Asteraceae and Lamiaceae species were studied against plant pathogens: *Alternaria solani*, *Alternaria alternata*, *Botrytis cinerea*, *Fusarium oxysporum*, *Fusarium solani* and *Neocosmospora keratoplastica*.

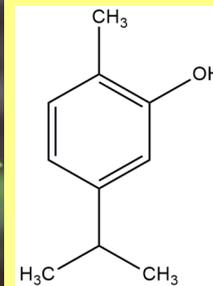
Methanolic extracts of *Artemisia santhonicum* L., *Origanum vulgare* subsp. *hirtum* (Link) Letsw. and *Leucosium aestivum* L. as well as acetone exudates of *Salvia sclarea* L., and *Thymus pulegioides* L., showed antifungal potential. These extracts were analyzed by GC/MS for the detection of bioactive compounds.

In the acetone exudates of *Thymus pulegioides* oleanolic acid was found as the main component.



Oleanolic acid

Carvacrol was determined as active compound in the extract of *Origanum vulgare* subsp. *hirtum*.

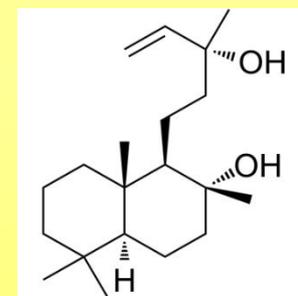


Carvacrol

In the acetone exudates of *Salvia sclarea*, diterpene (sclareol) was found as the main component.

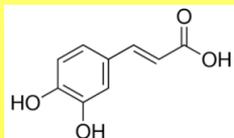


Sclareol

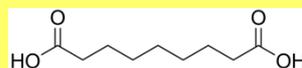


Chlorogenic, quinic, azelaic, protocatechuic and caffeic acids as well as polyols were detected in large amounts in the extract of *Artemisia santhonicum*

Caffeic acid

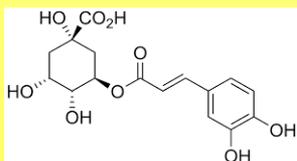


Azelaic acid



Protocatechuic acid

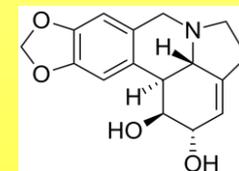
Chlorogenic acid



Alkaloid galantamine was determined as active compound of *Leucojum aestivum* extract.



Lycorine

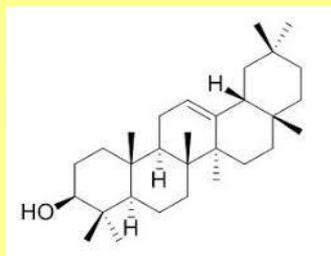


The studied extracts were scanned for bactericidal and bacteriostatic activity against *Pseudomonas aeruginosa*, *Escherichia coli*, *Bacillus subtilis*.

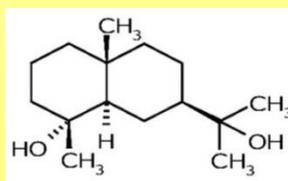
Significant activity were found to exhibited methanolic extracts of *Artemisia lerchiana* Weber, *Salvia officinalis* L., *Micromeria dalmatica* Benth, *Achillea clypeolata* L., *Thymus jankae* Celak., *Tanacetum parthenium* L.



Micromeria dalmatica



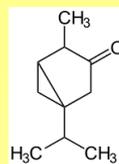
Amyrin



Sesquiterpenes



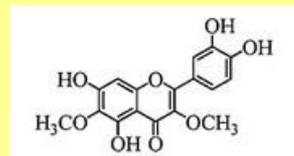
Salvia officinalis



Tujone



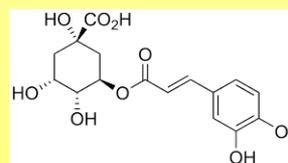
Achillea clypeolata



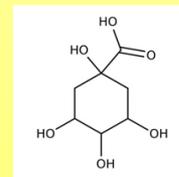
Methylated flavonoid aglycones



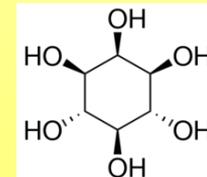
Artemisia lerchiana



Chlorogenic acid



Quinic acid



Myo-inositol

The received data characterize triterpene acids, terpenes, alkaloids, flavonoids, polyols as potential compounds with antimicrobial activity.

Acknowledgements: This research was supported by the Bulgarian National Science Fund, Bulgarian Ministry of Education and Science (Grant DN 16/2, 11.12.2017).