

A195 Composition and antimicrobial activity of the essential oils of several Spanish wild-growing plants

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The aim of this work was to study the antimicrobial activity of the essential oils of a selection of plants growing wild in Spain as a part of a more general collaboration programme between the University of Jaén and Domca S.A. on the search of naturally occurring compounds with potential applications in the food industry.

The studied essential oils were obtained by conventional steam distillation of air-dried plant material of *Lavandula latifolia* Med., *Thymus mastichina* L., *Thymus zygis* Loefl., *Juniperus oxycedrus* ssp. *badia* (H. Gay) Debeaux and *Artemisia herba-alba* Asso ssp. *valentina* (Lam.) Marcl. These oil samples were screened for the antimicrobial activity by the agar diffusion methodology from cellulose-disc (1) against bacteria (*Staphylococcus aureus*, *Bacillus cereus*, *Escherichia coli*), yeast (*Candida krusei*) and fungi (*Geotrichum candidum*, *Penicillium* sp., *Penicillium italicum*, *Aspergillus niger*), as much as collection or isolated strains from different foodstuffs.

The qualitative and quantitative analyses of these oils were carried out by capillary GC and GC-MS in combination with retention indices. Main components of *L. latifolia* were linalool, 1,8-cineole and camphor. The *T. mastichina* oils were dominated by 1,8-cineol and the *T. zygis* oils by thymol or *p*-cymene (depending on the plant phenological stage). Both leaf and berry *J. oxycedrus* ssp. *badia* essential oils were mainly composed of α -pinene and lesser amounts of manoyl oxide and myrcene, respectively. The oils of *A. herba-alba* ssp. *valentina* belonged to the davanone and 1,8-cineole chemotypes.

From the 13 oils, some kind of activity was detected in 7 of them, from which the essential oils of *T. zygis* showed the broadest activity spectrum (*S. aureus*, *B. cereus*, *E. coli*, *C. krusei*, *G. candidum*, *P. italicum*). The following in interest were the essential oils from leaves of *J. oxycedrus* and from flowering parts of *A. herba-alba*.

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A196 Antimicrobial activity of some selected species of genus *Nigella*

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The genus *Nigella* (family Ranunculaceae) is represented by species of Mediterranean-western Asian origin as annuals species. *Nigella sativa* is the most studied species and its seeds were investigated for their wide forms of biological activities as antimicrobial (1), spasmolytic, bronchodilator (2), anti-inflammatory, analgesic (3), antioxidant (4) and antitumour (5) activity. All above mentioned biological activities showing on an important role of *Nigella* sp. in phytomedicine and in traditional medicine in the Islamic countries (6). Most of the biological activities are attributed to the quinone constituents, of which the thymoquinone is more abundant compound (7). The antimicrobial activity of thymohydroquinone was determined by (8). We have compared antimicrobial activity of selected species of *Nigella* genus against selected bacterial strains and yeast in the preliminary study.

The antimicrobial activity of crude ethanolic extracts from *Nigella sativa*, *N. damascena* and *N. arvensis* seeds was tested against *Escherichia coli*, *Bacillus cereus*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Candida albicans* by the disc diffusion test. However, the extracts showed wide spectrum of antimicrobial activity, they differ significantly in their activity against tested strains of microorganisms. The extracts from seeds showed a promising effect against gram-positive bacteria.

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