

LETTER TO THE EDITOR

Year : 2013 | Volume : 45 | Issue : 2 | Page : 201--202

Antimicrobial activities of the essential oils of endemic *Stachys rupestris* and *Stachys amonica* against multi-resistant bacteria

Aysel Ugur¹, Nurdan Sarac², Omer Varol³,

¹ Department of Basic Science, Section of Medical Microbiology, Faculty of Dentistry, Gazi University, Ankara, Turkey

² Department of Biology, Faculty of Science, Mugla Sıtkı Kocman University, Mugla, Turkey

³ Department of Biology, Faculty of Science and Arts, Aksaray University, Aksaray, Turkey

Correspondence Address:

Aysel Ugur

Department of Basic Science, Section of Medical Microbiology, Faculty of Dentistry, Gazi University, Ankara
Turkey

How to cite this article:

Ugur A, Sarac N, Varol O. Antimicrobial activities of the essential oils of endemic *Stachys rupestris* and *Stachys amonica* against multi-resistant bacteria. Indian J Pharmacol 2013;45:201-202

How to cite this URL:

Ugur A, Sarac N, Varol O. Antimicrobial activities of the essential oils of endemic *Stachys rupestris* and *Stachys amonica* against multi-resistant bacteria. Indian J Pharmacol [serial online] 2013 [cited 2021 Oct 13];45:201-202

Available from: <https://www.ijp-online.com/text.asp?2013/45/2/201/108327>

Full Text

Sir,

The global issue of emerging resistant infections has led to the search for new antimicrobial agents. Medicinal plants are a source of renewed interest as many of them have been used in folk medicine to treat infections. Pharmacological studies have confirmed that the extracts or components of the plants belonging to the genus *Stachys* exert significant antimicrobial effects. [1],[2] Of them, *Stachys rupestris* (Montbret et Aucher ex Benth) and *Stachys amonica* (P.H. Davis) are indigenously found in South Anatolia in Turkey. [3] The *Stachys* species have been reported to treat genital tumors, sclerosis of the spleen, inflammatory tumors, and cancerous ulcers. [4] However, their antimicrobial activity has not been documented. In this study, the essential oils of *S. rupestris* and *S. amonica* against different microorganisms, including multi-resistant bacteria, were evaluated for their antimicrobial activity.

The specimens of *S. rupestris* and *S. amonica* were collected at the flowering stage during the months of April-July from Kahramanmaraş, Turkey and a sample of each was deposited in the herbarium of the Faculty of Science, University of Mugla, Turkey (Herbarium No: O.V. 2378 and O.V. 2379). The essential oils of the dried aerial parts were obtained via hydrodistillation by using a Clevenger-type apparatus for four hours. The antimicrobial activity of the essential oils of *S. rupestris* and *S. amonica* were tested in vitro by using the paper disc diffusion method. In this study, two gram-negative standard test bacteria, six gram-positive standard test bacteria, nine multi-resistant bacteria, and yeast were used. The results obtained in the evaluation of the antimicrobial activity of the essential oils are shown in [Table 1].{Table 1}

The essential oils of *S. rupestris* and *S. amonica* showed greater activity against the gram-positive than gram-negative bacteria. The essential oils of *S. rupestris* inhibited all the gram-positive bacteria, except *Staphylococcus epidermidis* MU 30. The essential oils of *S. amonica* were active against all the gram-positive bacteria, except *S. epidermidis* MU 30 and *Staphylococcus aureus* MU 38. However, in the gram-negative bacteria, the two essential oils inhibited only the growth of *Cryseomonas luteola* MU 65 and *Stenotrophomonas maltophilia* MU 64. The essential oils were not effective against *Candida albicans*.

This study documents the in vitro antimicrobial activity of *S. rupestris* and *S. amonica* for the first time. The essential oils are shown to be effective against gram-positive bacteria, including multidrug-resistant strains. These plants need to be studied on a larger scale to elucidate their mechanism of action and may be useful as an alternative antimicrobial agent for multidrug-resistant bacteria in the future.

References

- 1 Serbetçi T, Demirci B, Güzel CB, Kültür S, Ergüven M, Baser KH. Essential oil composition, antimicrobial and cytotoxic activities of two endemic *Stachys cretica* subspecies (Lamiaceae) from Turkey. *Nat Prod Commun* 2010;5:1369-74.
- 2 Koutsaviti A, Milenkoviæ M, Tzakou O. Antimicrobial activity of the essential oil of Greek endemic *Stachys spruneri* and its main component, isoabienol. *Nat Prod Commun* 2011;6:277-80.
- 3 Davis PH, Edmondson JR, Mill RR, Tan K. *Flora of Turkey and East Aegean Islands*. Vol. 7. Edinburg: Edinburg University Press; 1988.
- 4 Skaltsa HD, Lazari DM, Chinou IB, Loukis AE. Composition and antibacterial activity of the essential oils of *Stachys candida* and *S. chrysantha* from southern Greece. *Planta Med* 1999;65:255-6.

Wednesday, October 13, 2021

[Site Map](#) | [Home](#) | [Contact Us](#) | [Feedback](#) | [Copyright and Disclaimer](#)