

PP37. Dermal application of oregano essential oil against recurrent urinary tract infections: an *in vivo* human pilot study

Meryem Özmen¹, Sanja Pavlović¹, Gerda Dorfinger^{2,3}, Karl Dorfinger²,
*Juergen Wanner*⁴, Iris Stappen^{1,3*}

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Recurrent urinary tract infections, mainly affecting elderly women, drastically lower patients' quality of life. Furthermore, these persons are confronted with repeated intake of antibiotics (AB). Due to its high amount of phenolic monoterpenes thymol and carvacrol, oregano essential oil is known for its good antimicrobial effect [1] and therefore is used in complementary medicine as well as in aromatherapy.

In this pilot study, the antimicrobial effect of oregano oil (OO) was investigated *in vivo* on 21 patients (two men) suffering from an acute urinary tract infection, diagnosed in the doctor's office. These patients were divided into three therapy-groups (à seven): group 1 was medicated with ibuprofen (for pain relief) plus OO (5% diluted in jojoba oil), group 2 with an AB plus OO, and group 3 with an AB plus pure jojoba oil as a control group. Patients were instructed to apply the oils (OO or control) to their lower abdomen for five minutes twice a day for seven days. Urine samples were collected on day 1 (in the doctor's office) and day 8 (end of therapy) and examined for bacterial growth, respectively. Additionally, the symptoms, as well as the health conditions of the patients, were evaluated by means of questionnaires on days 1 and 8. Urine samples were analyzed by GC-MS for the presence of free, as well as their bound, amount of thymol/carvacrol by SPME. Group statistics were performed by ANOVA and t-tests.

Analyses of bacteria counts did not show any statistically significant differences between the therapies. In all three groups, bacterial growth was reduced, as well as health problems, on day 8 compared to day 1. This could be due to different infecting microbes, age differences between patients as well as probable additional over-the-counter medication (e.g. cranberry). Individual analyses suggested interesting findings which might be in relation to patients' body mass index (BMI). This should be complemented by GC-MS analyses which are still ongoing. These results will additionally be presented.

References:

[1] Gavarić, N. et al., 2015. J. Essent. Oil Bear. Pl. 18, 1013–1021.

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¹Dpt. Pharm. Chemistry, University of Vienna, Althanstrasse 14, A-1090 Vienna, Austria; ²Praxisgemeinschaft Dr Dorfinger, Perfektastrasse 28, A-1230 Vienna, Austria; ³Austrian Society of scientific Aromatherapy (OeGwA), Perfektastrasse 28, A-1230 Vienna, Austria; ⁴Kurt Kitzing GmbH, Hinterm Alten Schloss 21, D-86757 Wallerstein, Germany.

*Corresponding author: iris.stappen@univie.ac.at