A185 Antimicrobial effect of *Rhodiola rosea* roots and callus extracts on various strains of *Staphylococcus aureus*

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Rhodiola rosea, rose root (Crassulaceae), is a medicinal plant, growing wild in Northern Asia and Central Europe. The main active compound found in the rhizomes and roots of *R. rosea* is salidroside (1% D.W.). The roots and rhizomes known as "golden roots" are used in medicine as a stimulating, toning, stress relieving and adaptogenic agent (1). The extracts obtained from *R. rosea* raw material are commercially available as dietary supplements in Sweden, Russia, Canada and the USA.

The antimicrobial activity against *Staphylococcus aureus* of *R. rosea* roots from two location and callus tissue cultivated *in vitro* in two laboratories was studied. Roots showed the highest activity. Roots of *R. rosea* plants growing in Botanical Garden in Poznań contained salidroside (2.04%), cinnamyl alcohol (1.46%) and rosavin. The extract was active against *S. aureus* ATCC 6538 P, *S. aureus* NCTC 4163 and *S. aureus* ATCC 25923. The MIC values were 100 to 150 µg/ml, respectively. Extract from intact plants growing wild on Babia Góra (the Carpathian mountains) had less antimicrobial activity and contained only rosavin (2). Callus elicited by yeast contained salidroside (1.44% D.W), was active only against *S. aureus* NCTC 4163, (MIC 100 µg/ml). *S. aureus* NCTC 4163 was most sensitive to their action. The extracts of intact plants root produced a higher growth inhibition zone than callus extracts.

References: 1. Wagner, H. et al. (1994) Phytomedicine, 1 (1), 63-76. **2.** Furmanowa et al. (2002) Herba Polonica XLVIII, 1, 23-30.

A186 Bioactive components from some Egyptian wild plants

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Two wild plants *Foeniculum vulgare* Mill subsp. *piperitum* (wild fennel) and *Salvia aegyptiaca* L. were investigated for their volatile oil contents. Fennel herb, being among the medicinal plants with high economic and medicinal value is used as an eyewash for sore eyes and as a diuretic for the treatment of urinary stones. Fennel fruits, being carminative and stomachic, are used as an important chewing ingredient after meals. Fennel essential oil is used to flavor different food preparations and in perfumery industries.

Salvia Species are used in folk medicine and many pharmaceutical industries. They have been used in many diseases such as tuberculosis, psoriasis and seborrhoeic eczemas. It has shown strong antibacterial and antifungal activities. The oils of some species showed significant anti-inflammatory and peripheral analgesic properties. Some *Salvia* species have been widely used in coronary heart disease.

The investigated plants were collected from wild population growing in sandy soils near El-Sallum region (41 km eastern Sallum) in March 2000 at flowering stage. Volatile oils from the air-dried plant materials were extracted by hydrodistillation for 3 h. The characteristic compositions of the essential oils were determined by gas chromatography/mass spectrometry. The essential oil of wild fennel herb was characterized by high concentrations of d-limonene (31.71%), *trans*-anethole (29.57%), eugenol (5.58%), myristicin (4.61%) and fenchone (4.5%) compared to 22.35%, 31.33%, 4.53%, 0.07% and 8.85% for the same compounds isolated from Egyptian cultivated fennel oil *Foeniculum vulgare* Mill, respectively.

The essential oil of *Salvia aegyptiaca* L was characterized by high concentrations of the oxygenated sesquiterpenoids (43.97%). The main oxygenated sesquiterpenoids in *S. aegyptiaca* was *trans*,*trans*-farnesol, phytol, spathulenol and *cis*,*trans*-farnesol. In addition to the above mentioned constituents, a variety of different n-alkanes, alcohols, fatty acids, esters and terpenoids were detected at lower concentrations.

The antimicrobial activities of the two oils were carried out using the inverted Petriplate method. The volatile oils showed prominant antimicrobial activities against yeast, Gram positive and Gram negative bacteria at a very low concentration (10 µl).