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Antimicrobial activity of secondary metabolites from the in vitro grown *Drosera capensis*

P 030

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The *Drosera* genus is a natural source of pharmacologically important compounds used as substrates in the production of pharmaceuticlas against chronic bronchitis and asthma (1). The optimal conditions for *D. capensis* micropropagation were described as: 0.75% agar solidified ½ MS medium with 25 mg/l ascorbic acid and 2% sucrose, pH 5.6. Fresh ground tissue (1 g) was extracted via sonication in 25 ml methanol or chloroform (30 min., 20°C). The suspension was filtered, evaporated and diluted in 5 ml of methanol. The accumulation of secondary metabolites in in vitro grown *D. capensis* was determined. LC analyses were performed on Merck-Hitachi HPLC pump Model D-7000, equipped with diode array detector Model L-7450 (Darmstadt, Germany). Antimicrobial activity of *D. capensis* extracts against several human bacterial pathogens was tested. Plant extracts (equivalent of 10–80 mg FW) were evaporated to dryness and diluted in 0.2 ml M-H medium containing bacterial culture (final concentration 5 x 10^5 cfu/ml^{-1}). The mixtures were incubated overnight at 37°C and the aliquots of 0.1 ml were plated out on agar plates. After the overnight incubation at 37°C the Minimal Bactericidal Concentrations (MBC) (2) of extracts from *D. capensis* were evaluated and compared to MBC of several antibiotics. The results indicate that equivalent of 30 mg of FW of in vitro grown *D. capensis* plants have bactericidal activity.

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Levisticum officinale hairy root cultures: influence of light and light type on growth and essential oil production

P 031

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The essential oils of *Levisticum officinale* W.D.J. Koch (Apiaceae), including those isolated from the roots, are used in the cosmetic, pharmaceutical and food industries [1]. This perennial and herbaceous plant, commonly known as lovage, is widely known by its aromatic, ornamental and medicinal properties. The effect of light and light type on growth and essential oil production of lovage hairy root cultures was studied by comparison of cultures maintained under "blue-basic" (400-550nm) and "day-light" 16h light photoperiod with control cultures maintained under darkness. All cultures were maintained in SH medium [2] and kept at 24°C on orbital shakers at 80 r.p.m. Growth was evaluated by fresh weight (f.w.), dry weight (d.w.) and by the dissimilation method. The essential oil samples were isolated by distillation-extraction and analysed by GC and GC-MS. Control hairy root cultures showed a fifteen-fold d.w. biomass increase at the end of the growth period (six weeks), whereas an approximately eight-fold and ten-fold increase was obtained with "blue-basic" and "day-light" grown cultures, respectively. These differences were supported by morphological and histochemical analyses. Major changes were detected in the essential oil composition, but *Z*-falcarinol was in all cases the major oil constituent: in darkness, "day-light" and "blue-basic" grown cultures (75%, 94% and 61%, respectively).

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