Growth kinetics and uliginosin B production in adventitious root cultures of *Hypericum polyanthemum* Klotzsch ex Reichardt

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**Introduction:** South Brazilian species, *Hypericum polyanthemum*, produces phenolic compounds, benzopyrans and a phloroglucinol derivative, uliginosin B, with biological activities. Aiming plant preservation and raw material quality, *in vitro* and *ex vitro* culture protocols were developed for the species. Among plant breeding techniques, root cultures are an efficient means of biomass and secondary metabolite production since provide a readily biomass increment and often allow easy extraction. **Objective:** Establishment of root cultures of *H. polyanthemum* and investigation of the effects of different root inoculum concentration on biomass and uliginosin B yields. **Experimental:** Adventitious root cultures were obtained from leaf explants of plantlets cultivated on MΔ semisolid medium supplemented with 2 mg/L indol-butiric acid, at 25 ± 1ºC under dark condition. After 14 days, small roots sprouted out from the leaves and were subcultured every 2 weeks. After grown, they were transferred to the same liquid medium with inoculum densities of 2, 4, 6, 8, 10, 40, 80, 120, 140 and 200 g/L, maintained in a rotatory shaker (100 rpm) and after 6 subcultures cycles of 2 weeks, fresh and dry biomass were recorded and uliginosin B yields were quantified by HPLC. **Results:** Adventitious roots were rightly propagated and afforded higher final biomass for the higher inoculum densities. Nevertheless, the higher fresh and dry biomass gain were increased with the increasing inoculum density up to 8 g/L (390% of the initial biomass) decreasing afterwards. Uliginosin B was quantified only in 8 to 160 g/L inoculum densities (4 ± 0.1 mg/100g fresh weight). **Discussion and Conclusion:** The results agree with findings which show that high initial inoculum density can play a positive effect on root biomass and a negative effect on the growth ratio as well as on secondary metabolite production in adventitious root cultures. To determine the exact stage of maximum biomass and uliginosin B production, root growth is currently being analyzed through different culture periods.

**Acknowledgements:** Financial support and doctorate scholarship from CNPq/Brazil