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The effect of growth conditions on the active compounds found in medicinal plants

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Statement of the Problem: In spite of the world-renowned Brazilian biodiversity and the therapeutic potential of its medicinal plants, lack of information regarding the correct identification and quality control of these species is an obstacle to their use. The use of medicinal plants in Brazilian health policy has been increasingly promoted by governmental guidelines and syrup using two species of Guaco is currently supplied by the Health System (SUS) as a cough medicine. Although the commercialization of herbal medicines in Brazil is governed by several laws, the quality of raw material interferes with the safety, quality and expected efficacy of herbal medicines. Different conditions of cultivation of medicinal plants result in variations in the concentrations of active principles and may affect these parameters.

Methodology and Theoretical Orientation: The variation of secondary metabolites of these two species was influenced by the variations in the cultivation conditions of: temperature, luminosity, soil, mechanical damages and water supply, as well as field monitoring of fluctuations due to the period of collection or seasonality. Extracts were made from the leaves and their composition was evaluated by liquid chromatography with mass spectrometry, following the content of its marker (coumarin) as well as the profile of the other components.

Conclusion and Significance: The highest variation among the secondary metabolites was found between the two guaco species, *M. glomerata and M.laevigata*, so they cannot be used interchangeably. In seasonality, M. laevigata seems to suffer mainly from air temperature in the production of secondary metabolites; already for *M. glomerata* it was possible to notice the influences of the flowering in the decrease of chlorogenic acid. No significant variations were observed in relation to collection time (morning, noon or afternoon). Regarding the treatments, a single condition was not found to increase all the metabolites of therapeutic interest of these species.

Biography

Alexandra C H F Sawaya holds a Bachelor's degree in Pharmacy and Biochemistry from the faculty of Pharmaceutical Sciences of the University of Sao Paulo, a Master's degree in Pharmaceutical Sciences from Sao Francisco University, a PhD in Chemistry from the State University of Campinas and postdoctoral studies in the Department of Plant Biology (UNICAMP) between 2008-2013. She worked as a Lecturer at UNIBAN in the Pharmacy and Biomedicine Courses (2006-8) and in the Professional Master's Degree in Pharmacy. She is currently Assistant Professor at the Pharmacy Course at UNICAMP and active in the programs of Biosciences and Technology of Bioactive Products and Plant Biology of IB, UNICAMP. Her area of expertise is of mass spectrometry and chromatography in studies of bee products, food, herbs and herbal products.

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