Analysis of the secondary metabolites of Guadua angustifolia var. bicolor Lodoño (Bambusoideae: Poaceae) leaves using HPLC-MS

João Kazlauckas Caetano Corrêa[1,2], Paulo Roberto Hrihorowitsch Moreno[1]

[1.] IQ-USP, Instituto de Química da Universidade de São Paulo, Av. Prof. Lineu Prestes, 748 - Butantã, São Paulo - SP, 05508-900;
[2.] FCF-USP, Faculdade de Ciências Farmacêuticas da Universidade de São Paulo, Av. Prof. Lineu Prestes, 580 - Butantã, São Paulo - SP, 05508-000;

Bamboos are the most widely found plant species around the world, but they are not native to the European and Antarctic continents. From a cultural perspective, bamboos hold significant relevance for daily life, particularly in Asia, where they are used in construction and even in medicine, as seen in traditional Chinese Medicine. In literature, the primary compounds responsible for the biological activity of bamboos are phenolic compounds and flavonoids, the majority of studies focusing on asian bamboos, and very few on those from other continents. The species *Guadua angustifolia* var. *bicolor* Lodoño is a variety of *G. angustifolia* Kunth, native to Colombia and introduced to Brazil, for which no chemical composition studies have been conducted yet. Thus, this study aims to present new data on the possible secondary metabolites found in the plant species *G. angustifolia* var. *bicolor*. For this research, a leaf extract was prepared using a Soxhlet apparatus with ethanol (70%). The extract was then subjected to a solid-liquid fractionation process into four fractions with different polarities (hexane, dichloromethane, ethyl acetate, and n-butanol). After this process, the dichloromethane, ethyl acetate, and n-butanol fractions underwent column chromatography for better separation and concentration of the substances present in them. To determine the possible molecules present in the plant species, High-Performance Liquid Chromatography coupled with Mass Spectrometry (HPLC-MS) was used. A total of 9 phenolic compounds, 12 flavonoids, and 4 fatty acids were identified by HPLC-MS with the help of Global Natural Product Social Molecular Networking (GNPS), including p-coumaric acid, azelaic acid, ferulic acid, syringic acid, apigenin, nevadensin, coumaroylquinic acid, and isovitexin. These compounds were checked in the literature to see if similar structures have been described in bamboos. Finally, the study provided an initial chemical analysis of the species *G. angustifolia* var. *bicolor*, as well as information for comparing its chemical composition with other species within the genus Guadua for differentiation. Additionally, these results may guide future investigations in the search for new molecules with pharmacological potential.

Agradecimentos: CNPq