5th BCNP Brazilian Conference on Natural Products
XXXI RESEM
Atibaia – SP – Brazil
ISBN: 978-85-66836-10-3
Oct. 26–29th 2015

IDENTIFICATION OF ANTIOXIDANT COMPOUNDS OF SPECIES OF THE GENUS *SENNA* (FABACEAE) THROUGH MULTIVARIATE ANALYSES

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Abstract:

Fabaceae is a plant family of great interest because they produce different types of secondary metabolites with medicinal effects [3]. Within these metabolites there is the group of phenolic compounds as the flavonoids, which have a high antioxidant capacity [2]. Although different types of compounds have been isolated from Fabaceae plants, there is very little information on the phytochemistry of the genus *Senna*. Because of this lack of information, the aim of this study was focused on the identification of those compounds responsible of the antioxidant capacity in *Senna*-derived materials. Thus, the ethanol extracts of leaves and stems of different accessions of *S. viarum* and *S. multiglandulosa* were prepared (both reporting ethnomedicinal uses in Colombia). Each extract was profiled using liquid chromatography coupled to mass spectrometry (LC/MS). As supervising information, the total phenolic and flavonoid contents and antioxidant capacity of plant extracts was also determined. The total phenolics and flavonoids were quantified by the Folin-Ciocalteu and $AlCl_3$-complexation methods, respectively. Antioxidant capacity was measured by conventional methods (DPPH, ABTS and FRAP). *S. viarum* exhibited the best antioxidant activity. From the chromatographic and spectrometric data were tentatively identified groups of secondary metabolites at different retention times compared with the available literature. Finally, a multivariate analysis using OPLS-DA algorithm indicated that leaf extracts of *S. viarum* showed unique peaks that could be the possible cause of this activity took place. These peaks were consistent with the metabolites previously isolated from other *Senna* species such as anthraquinones and flavonoids [1]. The statistics-guided identification of bioactive compounds resulted in a good protocol to identify bioactive compounds in *Senna* species. The isolation of such compounds is currently underway. *The present work is a product derived by the Project IMP-CIAS-1567 financed by Vicerrectoría de Investigaciones at UMNG, validity 2014.*

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