

Natural Products and Synthetic Products

## Wood Typification by Ventury Easy Ambient Sonic-spray

### Ionization Mass Spectrometry

Elaine C. Cabral,<sup>1</sup> Rosineide C. Simas,<sup>1</sup> Vanessa G. Santos,<sup>1</sup> Carmen L. Queiroga<sup>1,2</sup>  
Valnei S. da Cunha;<sup>4</sup> Gilberto F. de Sá,<sup>3</sup> Romeu J. Daroda<sup>4</sup> and Marcos N. Eberlin<sup>1</sup>

[elacricab@yahoo.com.br](mailto:elacricab@yahoo.com.br)

<sup>1</sup>ThoMSon Mass Spectrometry Laboratory, Institute of Chemistry, University of Campinas - UNICAMP, Brazil. <sup>2</sup>CPQBA-UNICAMP, Campinas-SP, Brazil. <sup>3</sup>Federal University of Pernambuco, Department of Fundamental Chemistry, Recife, PE, Brazil. <sup>4</sup>National Institute of Metrology, INMETRO, Division of Chemical Metrology, Duque de Caxias, RJ, Brazil.

Ventury easy ambient sonic-spray ionization mass spectrometry in both its liquid- ( $V_L$ -EASI-MS) and solid sample modes ( $V_S$ -EASI-MS) is shown to provide nearly immediate and secure typification of woods, as demonstrated for Mohogany, a most valuable type of tropical wood. This reddish wood display unique phytochemical markers (phragmalin-type limonoids) which are rapidly detected from the wood surface by  $V_S$ -EASI-MS or from a simple methanol extract of a tiny wood chip via  $V_S$ -EASI-MS. Unique profiles were obtained for Mohogany whereas genuine samples of six other types of woods (Cedar, "Jequitibá", "Currupixá", Red Angelim, Yellow Angelim and Stone Angelim), which are commonly falsified by artificial coloring and commercialized as Mahogany, display also typical but dissimilar phytochemical profiles as compared to that of the authentic wood. Variable and atypical chemical profiles were observed for artificially colored woods. Secure chemical characterization via  $V_S$ -EASI-MS or  $V_S$ -EASI-MS fingerprints of Mohogany and other types of woods with similar appearance should help to control the illegal logging and trade of this and other endangered woods and their falsification, and to create certified standards.

[1] Alberici, R. M.; Simas, R. C.; Sanvido, G. S.; Romão, W.; Lalli, P. M.; Benassi, M.; Cunha, I. B. S.; Eberlin, M. N. *Anal. Bioanal. Chem.* **2010**, 398, 265.

[2] Haddad, R.; Sparrapan, R.; Kotiaho, T.; Eberlin, M. N. *Anal. Chem.* **2007**, 80, 898.

[3] Santos, V. G.; Regiani, T.; Dias, F. F. G.; Romão, W.; Jara, J. L. P.; Klitzke, C. F.; Coelho, F.; Eberlin, M. N. *Anal. Chem.* **2011**, 83, 1375.

Silva, J. D.; Souza, K.; Oliveira, M. M. *J. Mass. Spectrom.* **1986**, 31, 33 - 38.