BIOTROPICA
THE JOURNAL OF TROPICAL BIOLOGY AND CONSERVATION

BIOTROPICA 40(6): 775–776 2008 10.1111/j.1744-7429.2008.00468.x

2008 Alwyn Gentry Awards

Outstanding student presentations are recognized at the annual meetings of the Association of Tropical Biology and Conservation, with the prestigious Alwyn Gentry Award. This year in Suriname we judged 47 oral presentations and 12 poster presentations. **Mailyn Adriana Gonzalez**, received the award for her oral presentation, entitled "*Towards large-scale inventories of tropical trees using DNA-barcoding techniques*". The judges would also like to honor two finalists for best oral presentation: **Adriana Bravo** (Lousiana State University) and **Alexandra Pardow** (University of Kaiserslautern). The 2008 winner for her outstanding poster was **Elodie Courtois**, for "*Emission of plant volatiles in the vegetative parts of 31 tropical tree species in French Guiana*".

Susan G. Laurance (Chair, Alwyn Gentry Award Committee)

Towards Large-Scale Inventories of Tropical Trees Using DNA-Barcoding Techniques

M. Adriana Gonzalez, C. Baraloto, J. Engel, S. Mori, P. Pétronelli, B. Riéra, A. Roger, C. Thébaud, J. Chave; Université Paul Sabatier, Laboratoire d'Evolution et Diversité Biologique, France; e-mail: mgonzale@cict.fr

Mailyn Adriana Gonzalez

The workload required for identifying tropical plants remains a major impediment to the development of large-scale biodiversity surveys in the tropics. Here, we assess whether molecular identification tools, specifically 'DNA-barcoding' techniques, may help in the taxonomic identification of tropical tree during large-scale inventory programs. This approach relies upon a combination of small, universal, and highly variable DNA sequences that should be unique to each species. We tested DNA barcoding by sequencing five plastid markers on 526 individuals representing 49 woody plant families and 245 species collected at the Nouragues Station, French Guiana. We found that the combination of two DNA markers (*trnH-psbA* & *rpoC1* or *rbcL*) provided enough sequence variation to reliably discriminate congeneric species in 80 percent of the cases. Additionally all individuals were identified to the family level and 90 percent to the genus level. Further we challenged to identify seedlings ($N = 253$) and individuals that remained unidentified after an inventory ($N = 100$). Based on two DNA markers, we were able to recover genus identification for 70 percent of the seedlings and 80 percent of the morphologically unidentified individuals. Future improvement of these methods will critically depend on the development of large sequence repositories closely associated with voucher herbarium specimens. DNA-barcoding of plants should become a standard tool in the toolkit of tropical ecologist and pave the road for biodiversity sampling of unprecedented size.

Emission of Plant Volatiles in the Vegetative Parts of 31 Tropical Tree Species in French Guiana

E. Courtois, D. Stien, P. Blandinieres, J. Chave; Université Paul Sabatier, Laboratoire d'Evolution et Diversité Biologique, France; e-mail: courtois@cict.fr

Elodie Courtois

Volatile organic compounds (VOCs) released by plants are implicated in a range of functions (pollinator attraction, defense against

herbivores). A number of studies have focused on the VOCs emitted by flowers, much less on the defensive compounds emitted by other plant organs such as leaves and bark. To examine the evolution and function of these vegetative VOCs, we characterized the bouquet of VOCs emitted by the bark and the leaves for 189 individuals belonging to 31 woody tropical species of 14 families in two study sites in French Guiana (Nouragues and Paracou research stations). VOCs were extracted by SPME (Solid Phase Micro Extraction) and analyzed by GC-MS (Gas Chromatography-Mass Spectrometry). This allowed us to isolate 234 molecules divided into 12 Green Leaf Volatiles (5%), 29 monoterpenes (12%) and 193 sesquiterpenes (83%) which confirms the astounding chemical diversity of tropical rain forest trees. In the leaves, 11 species emitted less than five compounds and 14 emitted more than 10 compounds while in the bark, all had more than 10 compounds. For each tissue, the intraspecific variability varied from 0 to 73 percent and all species presented less than 50 percent of shared compounds between the bark and the leaves of the same individual. The species with the largest diversity of VOCs and the lowest intraspecific variability were found in the Annonaceae, Burseraceae and Anacardiaceae. These families are therefore of interest for future study on the indirect defenses by VOCs.