

**Report on
Individual and Institutional Capacity Building in Taxonomy and Collection Management**

as provided by the

**Belgian Focal Point to the Global Taxonomy Initiative
Royal Belgian Institute of Natural Sciences – Rue Vautier 29 – 1000 BRUSSELS - Belgium**

1. Coordinates trainee

Name: Pedro Luís Rodrigues de Moraes

Country: Brazil

Date of arrival and departure in / from Belgium: 01/07/2004, 03/08/2004

Number of training days: 22

Location of training (e.g. RBINS, RMCA, RBG,...): Royal Botanical Garden of Belgium

Taxon for which training was received: Family Lauraceae – Angiospermae - Dicotyledon

2. General Information

Describe concisely how you have learned about the Belgian GTI Project.

From one of my researches at the internet, searching for taxonomy and herbarium collections, I found the website of GTI which attracted my attention. By reading the documents available in this website, I realized that it could be an unique opportunity to apply a proposal concerning the study of the Brazilian collections housed at Herbarium BR.

Describe concisely why you needed capacity building in taxonomy and collection management.

In reality, I was not searching for capacity building in taxonomy and collection management, but the means to study the collections referred above. However, during my stay at the Royal Botanical Garden of Belgium, I was able to learn some of the procedures adopted by the managers of the Herbarium of this institution for the management of its huge collection. Additionally, the talks with the botanists of Herbarium BR about several subjects related to taxonomy were fruitful.

Describe concisely what training you have received and how this training can be related to taxonomy and /or curation.

I have not received specifically any training related to taxonomy and/or curation of collections. However, I have scanned many specimens of interest to my studies through the scanner equipment that was put at my disposal for having high resolution images of those specimens. High resolution (600dpi) electronic images of the specimens were captured using ‘HerbScan™’ scanning unit, where the scanner (Epson Expression 1640XL) was located upside down on specially designed and manufactured cradle. This minimises the risk of damaging the specimen since it is placed on a movable shelf on the cradle which brings the specimen up to the scanner, thus avoiding the need to turn it upside down. During digitisation all specimens were barcoded and their images saved and labeled according to their respective barcode number. From the whole collection of Lauraceae housed at BR, 832 specimens gathered in Brazil, belonging to 207 species (95 valid species) distributed within 17 genera, were

analysed. From them, 212 specimens were nomenclatural types (153 different types). From the 832 Brazilian specimens, 555 were barcoded, 453 were scanned and 776 were digital photographed. Those specimens that have been cited in Martius' *Flora Brasiliensis* (230 specimens) had their images saved in the original TIFF format (file size \approx 200 Mb) which shall be used in a future encompassing of the family Lauraceae in the *Flora Brasiliensis*' digitisation projects ("The *Flora Brasiliensis* Digital Library Initiative", from CRIA in collaboration with Dr. Paul Berry, University of Wisconsin, Madison and M.C.E. Amaral, V. Bittrich & G.J. Shepherd (UNICAMP); and the collaborative project of The National Botanic Garden of Belgium: "Prototype image Server to integrate the Martius Herbarium and the Digital *Flora Brasiliensis*").

Describe concisely how your gained capacity will help you in your professional duties.

The scanned specimens (mainly nomenclatural types and historical collections) as well as the digital photographs and annotations of the studied material will help me and other researchers in the identification of Brazilian collections that have been studied at present and in the future. Three taxonomic projects that are in course and have been coordinated/executed by me (Taxonomic revision of Brazilian species of *Cryptocarya* (Lauraceae); Flora of states of Goiás and Tocantins – Family Lauraceae; and Flora of the Microregion 'Santa Teresa', state of Espírito Santo – Family Lauraceae) will incorporate the information gained from the analyses of collections kept at Herbarium BR, complementing and/or aiding the species treatments.

Describe concisely how your gained capacity will be implemented in your institution.

All the images that have been saved in a compressed format (453 files in JPEG format) in 4 compact disks have already been incorporated in the database of Herbarium UEC (State University of Campinas), which is available for consulting from an intranet web up to the present. In a near future, this database, and consequently the images of Lauraceae specimens from Herbarium BR, will be available online at the internet. Additionally, the acquired knowledge of the extant collections kept in BR will help me in the curation of the collection of Lauraceae species kept in Herbarium UEC.

Did the received training come to terms with your taxonomic and / or curatorial needs?

The study of collections mainly from Martius' private Herbarium was of great importance because I could verify and apprehend that it was poorly studied up to the present, or not studied at all, by the majority of the reviewers of genera of Lauraceae. The rich and well curated collection at Herbarium BR, with several duplicates of many specimen gatherings from Brazilian species, possesses many types (even holotypes) that have not been properly annotated priorly because they were in the limb of neglectfulness by the specialists that should be aware of their existence. In this sense, I had the privilege to check many "lost" type specimens, and to verify many errors and/or incomplete information from the publications of those taxonomists that had not studied those collections in their respective revisions.

Describe concisely if you or your institution need other training.

The same opportunity that was given to me to study the Brazilian collections of family Lauraceae could be important for other researchers that are working with groups of other families. Concerning Lauraceae, other

important collection is going to be incorporated by Herbarium BR, what would be also of interest to be analysed in the future.

Describe concisely what infrastructural (e.g. lab material, library,...) and human resources your institution already has.

The Department of Botany at UNICAMP offers the basic infrastructure to the study of plant taxonomy and systematics. The Department has 4 laboratories: Anatomy, Biosystematics, Ecology and Taxonomy, which comprise three major areas of knowledge: Structural Botany, Ecology and Taxonomy. The Department houses as well the Herbarium UEC, which is one of the most important herbaria in Brazil. The Institute of Biology, from which the Department belongs, has a good Library which encompasses specialized books and the main journals in systematic botany, plant genetics, plant conservation and evolution. The staff of the Department of Botany comprehends a multidisciplinary team of 14 professors, 8 technicians and the curator of Herbarium UEC. Additionally, the Post-Graduation Program in Plant Biology, which is offered by the Department, has the contribution of other professors and researchers from other universities and institutions. For a more detailed information about the Institute of Biology and Department of Botany of UNICAMP, please visit the following website: <http://www.ib.unicamp.br/>.

Describe in detail what other infrastructural resources you or your institution need to become fully operational.

One of the main limitations for taxonomists of many plant groups in Brazil is that we have no duplicates of type and historical specimens in our herbaria. The major items required for thorough taxonomic treatments – types, older literature and specimen data to supplement locally available material are largely contained in European or North American institutions, making access difficult, costly and/or practically impossible for many taxonomists working in Brazil. In this sense, the promotion of access to taxonomically useful or vital information is unquestionably desired. At UNICAMP, not different from the Brazilian reality, we face the challenge of having “too many species to study, too few taxonomists to do it, and too little resources available for doing it”. Any sort of cooperation with other institutions would be of great improvement in our current situation. It has become increasingly apparent in recent years that changes in international legislation and the effort to exploit biodiversity in more rational ways demand an updated and more complete knowledge of just what is known to occur within the borders of most tropical countries. Concerns over conservation and preservation have also made more complete and reliable information an urgent necessity, given the rate and extension of destruction of natural ecosystems in recent years. Much of the biodiversity of Brazil is still relatively intact and, paradoxically, the extra-Amazonian biomes of the cerrados and Atlantic Rain Forest are much more vulnerable and under greater immediate threat than the much more widely known and internationally discussed Amazonian Rain Forests. Detailed knowledge of the flora and the distribution of its species is vital and urgent if any real attempt is to be made to preserve the most diverse and essential ecosystems and areas.

Describe how you think the Belgian Focal Point to the GTI can further construct capacity for you or your institution.

The Belgian Focal Point to the GTI has already started building the first pathway by promoting my visit to Herbarium BR. The maintenance of such initiative for other researchers wanting to study important collections housed at Belgian institutions would be an extremely important mean for the acquisition of accurate taxonomic information.

THIS QUESTIONNAIRE MUST BE SUBMITTED ELECTRONICALLY (OR BY FAX) WITHIN ONE MONTH AFTER THE OFFICIAL CLOSURE OF THE TRAINING.

Dr Yves Samyn
Belgian Focal Point for the GTI
Royal Belgian Institute of Natural Sciences
Rue Vautier 29
B-1000 Brussels (Belgium)
Tel. : +32 2 627 43 41
Fax : +32 2 627 41 41
Email: cbd-gti@naturalsciences.be