GRANT APPLICATION FORM

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Field of Specialization: Taxonomy of Angiosperms.

List of up to four relevant publications:

VOLTZ, R.R.; ALVES-ARAÚJO, A.; GOLDENBERG, R. 2020. Native species of Sapotaceae Juss. in Paraná, Brazil. Phytotaxa 430 (4): 224–276.

All publications: http://lattes.cnpq.br/1270601568716170

Systematic of *Mouriri* and *Votomita* (Olisbeoideae, Melastomataceae)

The Neotropical genera *Mouriri* Aubl. and *Votomita* Aubl. consist of 86 and 10 species respectively (Morley 1976, 1985, 1989, 1993a, 1993b, 1998, Goldenberg *et al.* 2013). The position of both in Myrtales has been subject to some controversy: some authors understand these genera as part of Melastomataceae, including other Paleotropical genera, in the subfamily Olisbeoideae Burnett (Stone 2006; cited as Memecyloideae Meisn. by Triana 1871, Cogniaux 1891); on the other hand, some authors understand that these genera must be segregated into their own family, Memecylaceae (Renner 1993, Clausing & Renner 2001). Since both positions are phylogenetically correct (i.e., Melastomataceae *senso stricto* is a monophyletic group, sister of Olisbeoideae / Memecyloideae / Memecylaceae, also monophyletic), the first alternative is adopted here. This position is also adopted by APG IV (2016) and most the authors currently working on the family, which recognize subfamily Olisbeoideae as one of four Melastomataceae subfamilies.

Olisbeoideae Burnett is a Pantropical subfamily, with six genera (Stone 2006). The most recent phylogenetic evidence is based on only one nuclear molecular marker, the glyceraldehyde 3-phosphate dehydrogenase gene (GapC), and suggests that the Neotropical genera *Mouriri* and *Votomita* form a single lineage, sister to the Paleotropical genera *Memecylon* L. and *Spathandra* Guil. & Perr. (Stone 2006). According to the same hypothesis, this lineage would be sister to *Warneckea* Gilg and *Lijndenia* Zoll. & Moritzi, another Paleotropical lineage. However, the sampling presented by Stone (2006) for the Neotropical representatives of Olisbeoideae is quite limited, with only two species of *Mouriri* and one of *Votomita*.

Recent studies based on molecular phylogenies has been extremely useful in supporting studies on taxonomy, and even basing the redefinition of tribes and genera (Penneys *et al.* 2010, Michelangeli *et al.* 2013, Gamba & Almeda 2014, Majure 2015, Rocha *et al* .2018, Reginato & Michelangeli 2016a, Goldenberg *et al.* 2018), helping to understand evolution, both from a biogeographic (Renner *et al.* 2001) as well as morphological point of view (Kriebel *et al.* 2015, Reginato & Michelangeli 2016b). This information is absent for the *Mouriri* and *Votomita*, the Neotropical representatives of Olisbeoideae (Melastomataceae), and consequently there is also no information about the evolution and biogeography of these genera.

Objectives. (1) To develop a phylogenetic hypothesis for the *Mouriri* and *Votomita* lineage, based on nuclear and plastidial molecular markers; (2) test the monophyly of the Neotropical lineage in subfamily Olisbeoideae and investigate aspects related to biogeography and morphological evolution in the group.

Methods. Genomic DNA extraction will follow protocols already established for the family and available in recent bibliography (Michelangeli *et al* 2012, Reginato & Michelangeli 2016a, Goldenberg *et al.* 2012, 2018). Internal transcribed space (ITS) and external transcribed sequence (ETS) will be used, although they have shown little information for analysis in Olisbeoideae (Stone 2006). This author used a nuclear gene (GapC), unusual in studies carried out for the family, but which proved to be informative for the group studied here, and will also be used. Plastid markers include the intergenic spacers *accD-psaI*, *atpF-atpH*, *psbK-psbI*, *trnS-trnG*. Molecular work will be done in the WemSeq (https://www.wemseq.com/) lab in Federal University of Paraná, and the sequences will assembled, checked and aligned in Geneious 9.1.7 (Kearse *et al.*, 2012). Bayesian and maximum likelihood analyses will be carried out Beast v.1.8.4 (Drummond *et al*., 2012) and RaxML 8.2.4 (Stamatakis 2006), respectively.

Budget & Justification. I am currently in the first year of my PhD program awarded with a scholarship from the National Counsel of Technological and Scientific Development (CNPq – Brazil). This grant also provides limited funding for my research. A total of 32 samples are available in silica, belonging to 27 species of *Mouriri* and *Votomita*. However, about 20 species will need to be collected for a better sampling of the group. For that reason, this proposal seeks U$1250 to perform fieldwork in the state of Amazonas, Brazil, where about 17 species can be found (Ribeiro et al. 1999). Additionally, these funds will enable me to work on the collection in the INPA herbarium; this herbarium stores perhaps the bigger number of specimens of *Mouriri* and *Votomita* in Brazil, from which many are undetermined and deserve a closer analysis.

Expenses	**Total**
Airfare: Curitiba – Manaus – Curitiba	U$ 255.00 (R$ 1,100.00)
Vehicle rental (6 days in Manaus)	U$ 209.00 (R$ 900.00)
Food & Lodging (7 days)	U$ 649.00 (R$ 2,800.00)
Field assistant (3 days)	U$ 139.00 (R$ 600.00)

Total expenses: U$ 1252.00

Total requested: U$ 1250.00

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