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February 29, 2020

Selection Committee
Research Grants
International Association for Plant Taxonomy

Dear Selection Committee Members:

I am pleased to write in strong support of the application by Maria Beatriz de Souza Cortez, who has applied for a grant from the International Association for Plant Taxonomy to support fieldwork in Brazil.

Maria is an excellent third-year Ph.D. student in our lab. However, she is not actually a newcomer to UF or our lab. In 2012, Maria spent six months in our lab as an undergraduate international intern from the University of Campinas. She was fantastic! She had a very strong background in botany and taxonomy and wanted to learn methods for molecular, phylogenetic, population genetic, and phylogeographic analyses. She worked with several graduate students to get a broad range of experiences, especially Richie Hodel, with whom she worked on population genetics of mangroves, and Grant Godden, who taught her to make DNA libraries and use sequence capture methods to assemble gene sequences for phylogenetic analysis. The work with Richie earned her coauthorship on a paper that was published in the *American Journal of Botany* in 2016. Maria's amazing short-term stay also earned her a Young Botanist Award from the Botanical Society of America in 2013. In addition to great research, Maria also sat in on our BOT 2710 course, Practical Plant Taxonomy, in fall, 2012, and took the entire course for no credit, just to learn. She went to all of the labs and even took all of the exams! Her performance was exceptional; if she had actually taken the course for credit, she would have had the highest grade in the class! As a Ph.D. student at UF, Maria has been a Teaching Assistant for this course three times, and she is amazing!

Following her work in our lab, Maria returned to Brazil to complete her undergraduate degree. She then pursued a Master's degree, also at the University of Campinas. Her Master's work required extensive fieldwork and was an excellent study of genetic, geographic, evolutionary, and ecological variation in a species complex in *Clusia*. This study clarified the extent of divergence and concluded that the two subspecies of *C. criuva* should be recognized as separate species. Maria presented the results of this study at the Latin American Botanical Congress, which takes place only every four years, in Quito, Ecuador, in 2018. This was the perfect venue for this presentation because the plant complex occurs in the forests of South America, and many scientists who are interested in patterns of plant diversity attended the Congress. Maria earned a very competitive travel grant to help support this trip, and the results of this work have now been

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published.

Maria returned to UF in fall, 2017, as a Ph.D. student. Her dissertation research involves analyses of genetic diversity across the *campos rupestres*, a region of high botanical endemism in Brazil. In fact, although we tend to think of the Amazon or the Atlantic Forest as high in plant species diversity, the *campos rupestres* contain 15% of the plant species of Brazil despite occupying only 1% of its land. Her project involves analyses of phylogenetic diversity, ecological forecasting, and conservation. In addition, she is focusing part of her effort on a clade of *Begonia* that extends across this region and represents in microcosm the patterns and processes of diversification that appear to characterize many plant groups in this region. Through this analysis of *Begonia*, Maria will be able to address possible drivers of distributional patterns, such as niche diversification, geographic and genetic isolation, and other mechanisms, that may have shaped the floristic diversity of the *campos rupestres* more broadly. Her proposed fieldwork will enable her to collect samples and begin this empirical aspect of her dissertation research. Although not part of her proposal, Maria's dissertation also has an element of social science, as she explores the cultural context and conservation implications of the harvesting of an endemic plant of the *campos rupestres*, *sempre vivas* (a number of species of herbaceous flowering plants in the families Eriocaulaceae, Poaceae, Cyperaceae, and Xyridaceae), by local human populations. Her proposed fieldwork for collecting *Begonia* will also strengthen her background in the flora of the *campos rupestres* more generally and will contribute to her study of *sempre vivas* as well.

I also note that herbarium resources – both physical and digital – play an important role in Maria's research. She is conducting extensive analyses of phylogenetic diversity across the *campos rupestres*, all based on digitized herbarium data available through the Brazilian database Re flora. This resource compiles herbarium specimen data from herbaria across Brazil and is the best single aggregator of herbarium data for Brazilian plants. Maria will contribute to this database by digitizing and submitting data from the voucher specimens for her proposed research; these data will also be shared with iDigBio and GBIF. Through this process, Maria will help to build the world's herbarium-based data resources while also benefitting from those currently available.

As noted above, Maria has been an outstanding TA in the Practical Plant Taxonomy course. Having taken the class before, she was well prepared, even the first time she taught, and she excelled each of the three semesters she assisted with this course. She was extremely conscientious and worked tirelessly to obtain materials, set up the labs, work with the students, etc. Her students did really well, and we heard excellent reports from them about her as their instructor. More recently, she has assumed a leadership role in this course and has organized the materials needed from the greenhouse manager and the lab prep staff. In recognition of her outstanding teaching, Maria was recently awarded the Department of Biology's Graduate Teaching Award. Maria was also an outstanding TA for the Tropical Botany course given by Drs. Walter Judd, Lucas Majure, and Chris Baraloto in Miami in summer, 2018. In addition to this formal teaching, Maria is active in outreach to children, Girl Scouts, and other members of the public. In fact, she has led several intercontinental efforts to link scientists at the Florida Museum of Natural History with school children in Brazil! She always goes above and beyond what is asked of her.

Maria has also assumed leadership positions among her peers in the Department of Biology and the Florida Museum of Natural History. She organized the first Biology International Potluck for Thanksgiving, in 2018, an event that was continued this past year. She is also active in graduate student governance and has chaired committees for graduate student awards and honors. Her combined excellence as a student, researcher, and colleague led to her being named one of the University's Outstanding International Students in November, 2019. And there is certainly more to come!

In sum, Maria is an outstanding student. She has excelled as both a student and a teaching assistant and is making great progress on her dissertation. I look forward to continued excellence from Maria and urge you to support her fieldwork and her research on plant diversification in the *campos rupestres*. This work is sure to make a mark, from both the perspective of pure science and its impact on conservation of this amazing flora.

Sincerely,



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