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HYBRID ORIGIN AND PATTERNS OF GENE FLOW IN SYMPATRIC SPECIES OF BROMELIADS: EVOLUTIONARY IMPLICATIONS

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Bromeliaceae is one of the most diverse families native to Neotropics. *Dyckia* is the second major genus of Pitcairnioideae. About 83% of *Dyckia* species occur in Brazil, being the most diverse genus in Rio Grande do Sul state, with 28 species registered of which 17 possibly endemics. *Dyckia hebdingii*, *D. choristaminea* and *D. julianae* are bromeliads endemic to rock outcrops of Southern Brazil that can occur in simpatry. *Dyckia hebdingii* and *D. choristaminea* has distinct morphology, but *D. julianae* exhibits an intermediate morphology between the other two species and we speculate that it may have hybrid origin. We used seven nuclear and six plastid microsatellite to access the patterns of genetic diversity and population structure aiming to elucidate the boundaries of these three species and the patterns of interspecific gene flow among them. Furthermore, we performed manual crosses between species to test compatibility and fertility of species. The major results showed intermediated molecular profile of *D. julianae*, indicated high expected heterozygosities when compared with observed heterozygosities. Inbreeding coefficient (F_{IS}) was high for all species. Six cpSSR identified 12 haplotypes broadly shared among species. Six crosses generated fruits and seeds and none of them were between *D. hebdingii* and *D. choristaminea*. Our data suggest a hybrid origin of *D. julianae* from ancient crosses between *D. hebdingii* and *D. choristaminea*, since these two species are genetically different, have low current migration rate between them and seem do not cross each other, probably due to strong reproductive barriers. The indication of pre-zygotic barriers between *D. hebdingii* and *D. choristaminea* may have allowed these species persisted in sympatry. *D. julianae* seems to be able to cross with the other two species, being necessary to confirm the extension of introgression to access the consequences in species resilience.

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