

Genetic variability in *Araucaria angustifolia* seedlings from populations of State Parks in São Paulo

T3.22 Managing forest genetic resources for multi-purposes for forest products, ecosystem services and response to climate change

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Abstract: *Araucaria angustifolia* (Bert.) O. Kuntze, a native from the South and Southeast of Brazil, has had its habitat reduced due to human action. As a consequence, it's listed as an endangered species by IUCN (2018). Numerous efforts have been made to conserve this species, given it's social, economic and ecological importance for the region. Population genetics studies have produced results that are being applied to define conservation strategies. As part of a research project conducted *in situ* conservation units in São Paulo, the objective was to genetically characterize natural populations based on phenotypic traits in order to establish seed orchards through the cultivation of seedlings. Trees from two distinct natural populations were sampled, totaling 19 parent trees. Eleven of these, along with their respective progenies, originate from Campos do Jordão State Park, while the remaining eight, with their progenies obtained in Serra do Mar State Park - Cunha Nucleus. The produced seedlings were established in a coop experiment using a randomized complete block design, with 19 treatments (progenies) and multiple plants per plot (four blocks). Seedlings were evaluated at six and 14 months of age, respectively, after sowing, for growth traits such as height (cm) and stem diameter (mm). The data obtained were analyzed using SELEGEN REML/BLUP software (2014). The average values for total height and stem diameter were 21.5 cm at six months and 36.9 cm at 14 months. As for the stem diameter, values for the two periods were 3.5 mm and 4.35 mm, respectively. The coefficient of variation ranged from 14% to 27.1% for the evaluated traits, and phenotypic correlations between the traits were positive, with an average of 0.42. Significant differences were observed for all evaluated traits, particularly regarding height among the provenances and progenies. The individual heritability estimates were high, with an average value of 0.38, except for stem diameter at 14 months (0.16). The genetic divergence obtained from the cluster analysis revealed three progenies groups with a mixture of distinct provenances. Therefore, progenies exhibit interesting genetic variability for *ex situ* conservation, aiming at future use in tree breeding for wood and seeds (Acknowledgment: FAPESP 2019/19529-8).