

Phytochemical and Genetic Variability in Natural Populations of *Casearia sylvestris* Sw. (Salicaceae/Flacourtiaceae)

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Casearia sylvestris Sw. (Salicaceae/Flacourtiaceae), or guaçatonga, is a tree species of great pharmacological interest. Its clerodane diterpenes (casearins) presents antitumoral activities, among other properties. Two varieties of *C. sylvestris* are recognized. We studied the chemical and genetic diversity in populations of *C. sylvestris* from São Paulo State, Brazil. Nine microsatellite loci were utilized for a population genetic structure analysis, in which 376 individuals from nine populations distributed on four different ecosystems were sampled. The data were analyzed through frequentist and Bayesian approaches. Chemical diversity was studied by sampling in the same populations (12 individuals per population). Among the individuals sampled, 45 of them provided also cuttings which were rooted and kept in greenhouse for two years before chemical analysis. Chemical analyses were performed through casearins' extraction followed by HPLC. Genetic analysis and Bayesian clustering successfully assigned individuals to varieties, evidencing important genetic differences between these *taxa*. Chemical analyses revealed vast casearins' diversity. The obtained chromatograms revealed different casearin patterns between the varieties and among the ecosystems studied. Some molecules showed to be restricted to one of the varieties. Cuttings from different populations, even after two years of greenhouse growing, still presenting different patterns of chemical diversity. These results suggest that genetic factors may play an important role in casearins production by *C. sylvestris*.

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