



Genetic diversity and flooding survival in *Aegiphila sellowiana* (Lamiaceae), a typical tree species from upland riparian forests

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ABSTRACT. Saplings of *Aegiphila sellowiana* were submitted to flooding and analysis of genetic diversity in order to investigate flooding tolerance as well as its genetic determination. This response is important because it means that some lines could be planted in degraded riparian areas. Leaves were sampled from each plant, and they were submitted to different flooding periods. Mortality of saplings was 40, 80, 50, 53.3, 33.3, and 33.3% in flooding for 15, 18, 25, 50, 80 days, and flooding for 50 days followed by re-aeration for 30 days, respectively. From the total number of flooded plants, 46.7% died in the first seven days of treatment, while 53.3% survived the flooding. The percentage of polymorphic loci (P_p), Nei's genetic diversity (H) and the Shannon index (I) were slightly higher for the group that survived the stress of flooding (surviving: P_p (%) = 67.48, H = 0.184, I = 0.287; not surviving: P_p (%) = 66.67, H = 0.165, I = 0.261). Analysis of molecular variance showed that 5.88% of the genetic variability was due to the differences between groups of plants surviving and not surviving

flooding, while 94.12% was due to genetic differences between individuals within these groups. Similar results were obtained by principal coordinate analysis. Based on these results, we can assume the existence of environment-specific genotypes and the genetic determination of flooding tolerance in *A. sellowiana*. Thus, some lines of *A. sellowiana* could be used in the reforestation of riparian habitats, especially in uplands along riverbanks.

Key words: Genetic diversity; Flooding; Tolerance; Uplands