

SCREENING FOR DROUGHT TOLERANCE OF GROUND COVER SPECIES FOR URBAN GREEN SPACES

W.M.K.P. Wanninayake, K. Yakandawala* and J.K.W.N. Subashini

*Department of Horticulture and Landscape Gardening, Wayamba University of Sri Lanka,
Kuliyapitiya, Sri Lanka.*

*kapilay@wyb.ac.lk

Urban green spaces provide recreation, aesthetic, and ecological benefits, but many local authorities face funding and water scarcity challenges. Drought-tolerant ground cover species offers a sustainable solution for improving water use efficiency. Hence, this study investigated the water stress tolerance capacity of three ground cover species *Zebrina pendula*, *Pellionia repens*, and *Hemigraphis alternata*, under four species-specific irrigation intervals as treatments. For each species, 20 plants were assigned to each treatment and *Z. pendula* was irrigated daily (control), every 6, 12, and 18 days; *P. repens* daily (control), every 4, 8, and 12 days; and *H. alternata* daily (control), every 2, 3, and 4 days. The experiment was arranged in a completely randomised design and general linear model followed by Tukey's pair-wise comparison was used to analyse data. Survival and growth parameters were recorded. Growth parameters differed significantly among the species-specific treatments ($p < 0.05$). *Zebrina pendula* recorded 100% and 95% survival in once every 6-day and 12-day interval irrigation schedules, and thereafter, it was reduced to 65% in an 18-day irrigation interval. *Pellionia repens* recorded 100% survival throughout, while in *H. alternata*, 100% survival was recorded once in every two-day irrigation schedule, and thereafter, it was reduced to 40% and 20% respectively. Irrigation every two days showed high mean growth parameters in *H. alternata*, every eight days in *P. repens* and every 12 days in *Z. pendula*. Hence, *P. repens* and *Z. pendula* have strong adaptive traits under water stress conditions, whereas *P. repens* is the most resilient, whereas *H. alternata* is not recommended for drought-tolerant designs in sustainable green spaces.

Keywords: Drought tolerance, Ground covers, Growth performance, *Pellionia repens*, Urban green spaces