

Germination patterns and seedling growth of congeneric native and invasive *Mimosa* species: implications for risk assessment

Nisha Kharel¹, Anuj Dangol¹, Ashmita Shrestha¹, Hemanti Airi¹, Anjana Devkota¹, Lal Thapa¹, and Bharat Shrestha²

¹Tribhuvan University Central Department of Botany

²Tribhuvan University

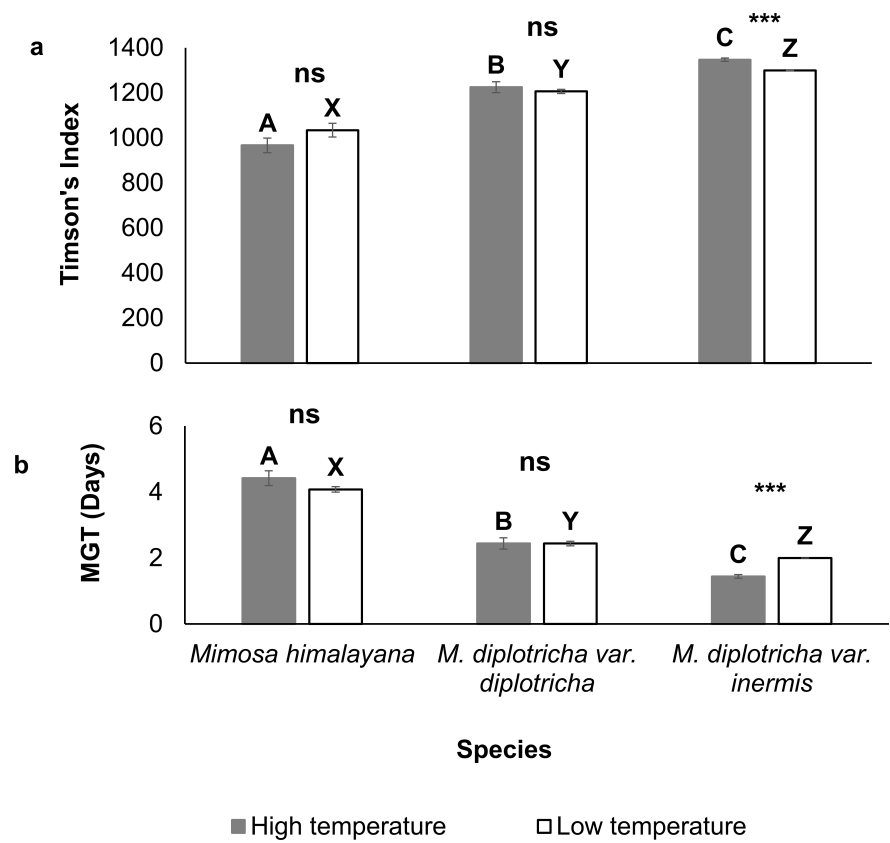
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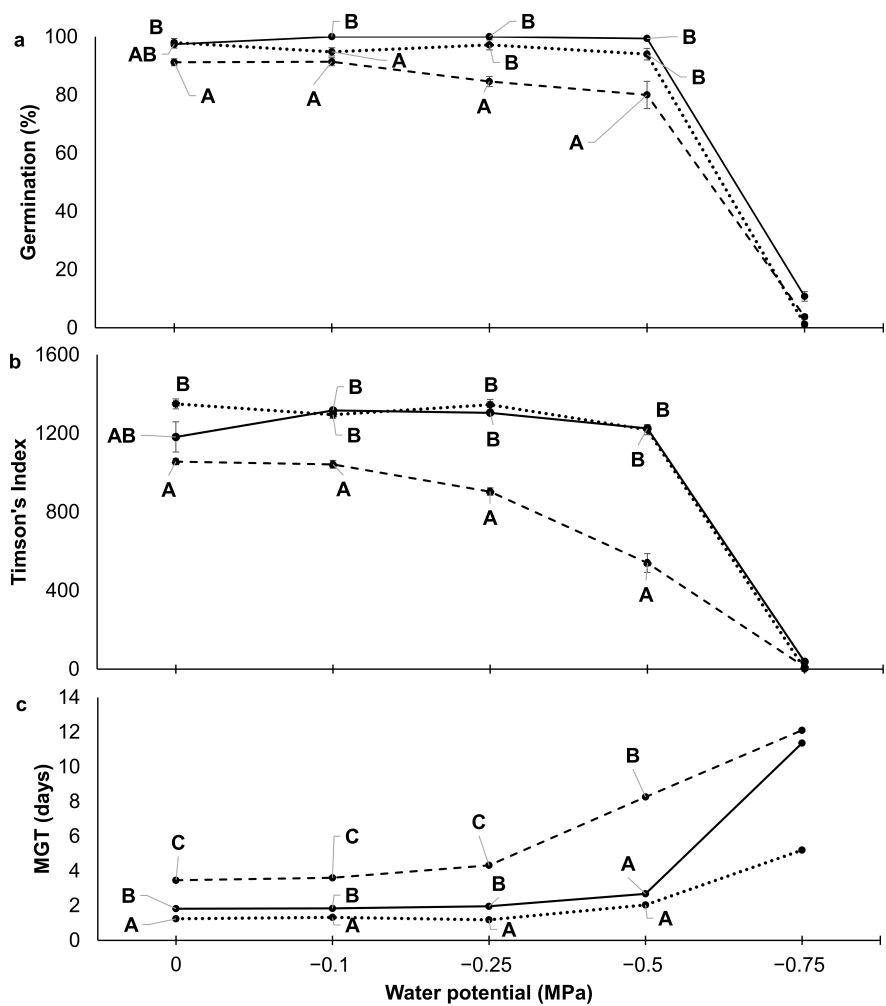
Abstract

Comparisons of plant traits between native and invasive congeners are useful approaches for identifying characteristics that promote invasiveness. We compared germination patterns and seedling growth of locally sympatric populations of native *Mimosa himalayana* and two varieties of invasive *M. diplotricha* (var. *diplotricha* and var. *inermis*) growing in south-eastern Nepal. Seeds were germinated under 12h photoperiod or complete dark, low (25/15°C day/night) and (30/20°C) high temperatures, different water stress levels, and soil depths. Plant height, biomass allocations, and relative growth rate (RGR) of seedlings were measured. Invasive *M. diplotricha* had higher germination percentage, rate, and shorter germination time than native species. Germination of both congeners declined as water stress increased, but the decline was more pronounced in native species. Seedling emergence declined with increasing depth in all taxa. The seedlings of invasive species were taller with higher leaf number and allocated greater proportion of biomass to shoot, while the native congener allocated greater biomass to root. The RGR was nearly twice as high in invasive species as it was in native congener. Seedling height and number of leaves were always higher in invasive than in native and the native-invasive differences increased over time. Better germination and higher growth performance of invasive species than congeneric native one suggests that seed germination and seedling growth can be useful traits for the prediction of species' invasiveness in their introduced range during risk assessment process.

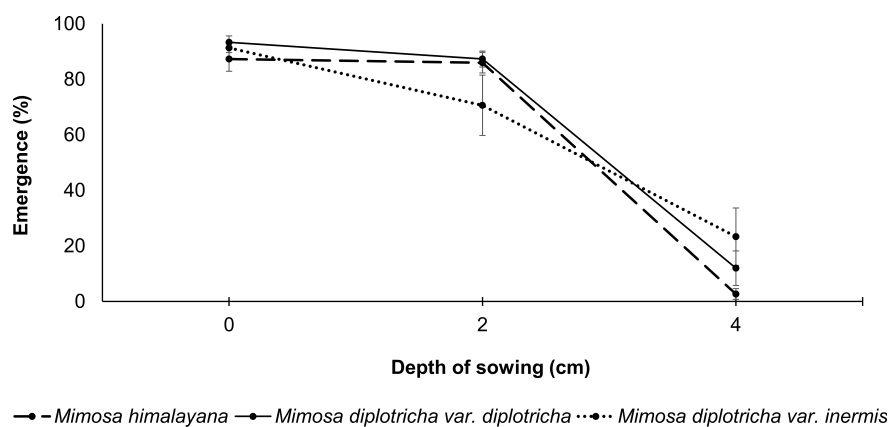
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Germination ecology and seedling growth of *Mimosa* spp_final.docx available at <https://authorea.com/users/625345/articles/647377-germination-patterns-and-seedling-growth-of-congeneric-native-and-invasive-mimosa-species-implications-for-risk-assessment>





—•— *Mimosa himalayana* —•— *M. diplotricha* var. *diplotricha* ...•... *M. diplotricha* var. *inermis*



—•— *Mimosa himalayana* —•— *Mimosa diplotricha* var. *diplotricha* ...•... *Mimosa diplotricha* var. *inermis*

