

Allelopathic Effect of *Prosopis juliflora* (Mesquite) on Seed Germination of Native Coastal Dry Forest Species

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Prosopis juliflora (Mesquite) is an evergreen tree species which had been introduced to Hambanthota district as a shade tree in the early 1950s. This species has invaded coastal dry forests of southern Sri Lanka and has become a threat to natural vegetation in these forests. Allelopathic compounds are found to be present in leaves, roots, pods and flowers of this species. This study aims to examine the impacts of allelopathic compounds present in *P. juliflora* on germination of seeds of six native dry forest species; *Bauhinia racemosa*, *Cassia occidentalis*, *Drypetes sepiaria*, *Flueggea leucopyrus*, *Salvadora persica* and *Ziziphus mauritiana*. Seeds of these species were kept in a concentration series of an aqueous root extract of *P. juliflora* (0%, 2%, 5% and 10%) for 48 hours and on soil collected from a natural forest and at a *P. juliflora* stand in Bundala National Park under *in vitro* conditions. Further investigations were done by adding activated charcoal to the soil collected from the *P. juliflora* stand.

While the seed germination of *B. racemosa*, *C. occidentalis*, *D. sepiaria* was significantly reduced ($P < 0.05$) in the presence of the root extract of *P. juliflora*, germination was delayed only in *C. occidentalis*. The results imply that allelopathic compounds are present in the root extract of *P. juliflora* which affect seed germination of some native plant species. Percentage seed germination was lower on the soil collected from the *P. juliflora* stand than that on natural forest soil, however, addition of activated charcoal to the *P. juliflora* stand soil enhanced germination. These results imply that allelopathic compounds may accumulate in the soil, adversely affecting seed germination of some plant species. However, the responses to allelopathic compounds of *P. juliflora* may vary among native coastal dry forest plant species. Plant species that are very sensitive to allelopathic compounds are at a risk of being eliminated from the dry zone ecosystems where *P. juliflora* has invaded. Species that are less sensitive to these allelopathic compounds may be recommended to be grown as an attempt to restore *P. juliflora* invaded lands.