

Use of MaxEnt modeling in determination of distribution of *Calotropis gigantea* plant (Apocynaceae) in Sri Lanka

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Information on species distribution is essential for biodiversity monitoring and conservation practices. Species distribution is determined by the biotic and abiotic factors, which highly influence on survival of species. *Calotropis gigantea* is a native, medicinal plant having less information on its' distribution in Sri Lanka. Objective of the study was to determine distribution of *C. gigantea* in relation to 18 bioclimatic variables using a novel species distribution modelling technique- MaxEnt. Surveys along roadsides were conducted in 120 sites covering all nine (09) provinces of Sri Lanka from December 2014 to June 2015. Occurrences of the plants were recorded at each site. MaxEnt modelling was carried out using recorded occurrence data and bioclimatic data downloaded from WorldClim database. According to occurrence data *C. gigantea* was found in all provinces except Central province of Sri Lanka. Highest distribution was in coastal regions and the lowest in Western and Sabaragamuwa provinces. MaxEnt modelling also predicted that entire coastal belt, Northern, North-Central and Eastern provinces of Sri Lanka contain the highest probability of *C. gigantea* distribution and low probability of *C. gigantea* distribution in North-Western, Western, Southern, Uva, Central and Sabaragamuwa provinces. The findings of the study provide detailed information on distribution pattern of *C. gigantea* in Sri Lanka and occurrence data could be submitted to Global Biodiversity Information Facility database, which will be greatly important for further studies of *Calotropis* plant. As MaxEnt modelling predicts the areas favorable for the plant growth, it will be useful for conservation process of the plant if needed.

Keywords: calotropis distribution, MaxEnt modeling and species distribution modelling

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