

## Does *Clidemia hirta* (L.) D. Don Affect Natural Regeneration from Soil Seed Bank in Halgolla Forest, Sri Lanka?

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Invasive plant species exert a significant impact on natural regeneration of tropical forests causing drastic changes in the future stand composition. Small isolated forest fragments surrounded by human habitation are more prone to plant invasions. Halgolla Forest Reserve (7018°N; 80031°E) is an isolated tropical lowland rainforest fragment in central Sri Lanka which is highly disturbed due to logging and illegal land encroachment. *Clidemia hirta* (L.) D. Don has established densely at the forest edges of this lowland forest fragment. Although, many studies have investigated the effect of this invasive species on standing vegetation, its effect on soil seed banks is poorly understood. Thus, this study investigated the impact of *C. hirta* on a seed bank in three habitat types in the forest; highly disturbed forest edge, less disturbed riverine area, and undisturbed forest interior. In each habitat type, 30 soil samples ( $10 \times 62.8 \text{ cm}^3$ ) were collected using stratified random sampling during dry and wet seasons. The seed bank was estimated by the germination method. Out of all emerged seedlings, 40.7% was represented by *C. hirta* seedlings while identified native seedlings represented 35.7%. The highest seedling density of *C. hirta* in the dry and wet season was recorded in riverine and edge habitats, respectively, though the values were not statistically significant between habitats. Species diversity and evenness were lower in highly disturbed forest edge in which the highest relative abundance of *C. hirta* was observed. The percentage emergence of native seedlings was negatively correlated with the emergence of *C. hirta* seedlings during both seasons. Low representativeness of native plant species in seed banks compared to *C. hirta* indicates the threat exerted by this invasive species on the natural regeneration of tropical lowland forests. Thus, it is crucial to eradicating this species to conserve the biodiversity of Halgolla Forest Reserve.

**Keywords:** *Clidemia hirta*, Invasive species, Regeneration, Soil seed bank, Tropical lowland rainforest

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