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## A study on phytosociology of three isolated natural forest patches in Gampaha district

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### Abstract

The study examined the phytosociology of selected three isolated natural forest patches in Gampaha district viz. Horagolla National Park, Maimbulkanda Sanctuary and Yakadawala Man and Biosphere Forest Reserve. Plants equal or greater than 5 cm diameter at breast height, were sampled in 10 plots in each forest (plot size 5 x 100 m), plant less than 5 cm diameter at breast height and higher than 1.4 m height were sampled in 30 plots in each forest (plot size 5 x 5 m), and plants less than 1.4 m height were sampled in 120 plots in each forest (plot size 1 x 1 m). Ecological indices and important value index, which is expression of the dominance of particular species in different forest patch, were calculated.

Total of 3308, 1324 and 3275 individuals were enumerated in Horagolla National Park, Maimbulkanda Sanctuary and Yakadawala Man and Biosphere Forest Reserves respectively. These individuals belong to 65, 100 and 100 species respectively. Their endemic percentages were 32.7%, 24.0% and 36.0% respectively. Total plant species recorded in all three forest patches were 144. Thirty eight (38) were found in all three forests. Sixty one (61) species were found only one of these three forests.

Result of this study showed that difference in diversity is significant ( $p < 0.05$  all three comparison). But within 5 x 100 m plots and 5 x 5 m plots Maimbulkanda Sanctuary and Yakadawala Forest Reserves have not shown significant differences in diversity. However, these two forests have significant diversity differences with Horagolla National Park.

Within 1 x 1 m plots Horagolla National Park and Yakadawala Forest Reserve have not shown significant differences in diversity. However, these two forests have significant diversity differences with Maimbulkanda Sanctuary.

This study found that *Artocarpus hirsuta* – an introduced tree species rapidly spreading showing invasive characteristics in Horagolla National Park and started to spread nearby forests as well. This study also recorded natural populations of *Cola accuminata* first time in Sri Lanka.

**Key words** : phytosociology, ecological indices, important value index, Horagolla national park, Yakadawala MAB reserve, Maimbulkanda sanctuary, *Artocarpus hirsuta*, *Cola accuminata*