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Biodiversity and Carbon stock of Tree Community in a Dry zone Urban Landscape

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Urban landscape has the potential to address many urban environmental and sustainability challenges at the local, national, regional and global scales. Yet in Sri Lanka, characterization of urban areas and its potential contribution to human wellbeing are often neglected. Hence, this study was conducted in the urban area of Kilinochchi in Northern Province of Sri Lanka to assess the tree diversity and carbon stock of an urban environment. Field assessment was conducted

according to land use pattern in the urban area namely parks, homegardens, school gardens, administrative blocks, cemeteries, agriculture lands, river sites, road sites, sparse and dense forests. Sampling plots were randomly selected from each location at a size of 20 m × 20 m. A total of 392 trees, comprising 53 species and 23 families were enumerated. Common species were Azadirachta indica, Borassus flabellifer, Manilkara hexandra and Terminalia arjuna. Mean Shannon Wiener index, evenness and richness were 0.88 ± 0.10, 0.75 ± 0.05 and 1.18 ± 0.10, respectively. Mean carbon stock of this urban vegetation was 127.97 ± 22.37 ton C ha-1, which was higher than sparse forest (27.84 ± ton ha-1) and lower than dense forest (161.91 ± 25.59 ton ha-1). Tree species richness and diversity were significantly high in parks and urban area compared to forest and other land uses and it was equally distributed in parks, school gardens and forest. The above results reveled that high diversity was due to selective planting of different species. The saplings that were found in urban area were very low compared to natural forests. Seedlings were not recorded any location in the urban area and it reveals that natural regeneration is impossible.

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