

TREES TO CAPTURE AIRBORNE PARTICLES IN URBAN ENVIRONMENTS

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Urban landscaping provides an emerging avenue to transform densely populated environments into more eco-friendly landscapes by applying effective designing techniques to ensure ecological and aesthetic aspects. Appropriate plants could enhance the quality of the landscape, and trees are one such softscape material that can be effectively incorporated in landscaping. However, in Sri Lanka, the texture of plants is underutilised in landscaping. Hence, the objectives of this study were to identify different textural classes of trees and to relate their usability in urban environments, especially for intercepting pollutants such as particulate matter. Thirty-nine tree species were selected for the study, and seven quantitative and eight qualitative morphological characters contributing to the plant texture were coded. The data were analysed by hierarchical cluster analysis, thus grouping tree species into three distinct textural classes: 20 fine-textured, five medium-textured and 14 coarse-textured species. The trees that belonged to the fine-textured group recorded shorter internodal and petiole length and smaller leaf area, which resulted in a dense canopy. The coarse-textured species recorded longer internodal and petiole length and larger leaf area result in a loose canopy. Apart from these characters, the presence of hairs on leaves further contributes to a coarse texture. The coarse-textured tree species have a higher potential to intercept airborne particulate matter than fine and medium-textured species. Hence, these species can be recommended for urban landscape designs to reduce atmospheric pollution.

Keywords: Landscaping, Morphological characters, Particulate matter, Texture, Trees