World Academy of Science, Engineering and Technology
International Journal of Civil and Architectural Engineering
Vol:9, No:09, 2015

Urban Vegetative Planning for Ambient Ozone Pollution: An Eco-Management Approach

Authors : M. Anji Reddy, R. Uma Devi

Abstract : Environmental planning for urban development is very much needed to reduce air pollution through the enhancement of vegetative cover in the cities like Hyderabad. This can be mainly based on the selection of appropriate native plant species as bioindicators to assess the impact of ambient Ozone. In the present study, tolerant species are suggested aimed to reduce the magnitude of ambient ozone concentrations which not only increase eco-friendly vegetation but also moderate air pollution. Hyderabad city is divided into 5 zones based on Land Use/Land Cover category further each zone divided into residential, traffic, industrial, and peri-urban areas. Highest ambient ozone levels are recorded in Industrial areas followed by traffic areas in the entire study area (> 180 µg/m3). Biomonitoring of selected sixteen local urban plant species with the help of Air Pollution Tolerance Index (APTI) showed its susceptibility to air pollution. Statistical regression models in between the tolerant plant species and ambient ozone levels suggested five plant species namely Azardirachta indica A. Juss which have a high tolerant response to ambient ozone followed by Delonix regia Hook. along with Millingtonia hortensis L.f., Alestonia Scholaries L., and Samania saman Jacq. in the industrial and traffic areas of the study area to mitigate ambient Ozone pollution and also to improve urban greenery.

Keywords : air pollution tolerance index, bio-indicators, eco-friendly vegetation, urban greenery
Conference Title : ICACE 2015 : International Conference on Architectural and Civil Engineering
Conference Location : Los Angeles, United States
Conference Dates : September 28-29, 2015