World Academy of Science, Engineering and Technology
International Journal of Urban and Civil Engineering
Vol:12, No:02, 2018

Selection of Landscape Plant Species: A Experiment of Noise Reduction by Vibration of Plant Leaves

Authors : Li Mengmeng, Kang Jian

Abstract : With the rapid development of the city, the noise pollution becomes more and more serious. Noise has seriously affected people's normal life, study and work. In addition, noise has seriously affected the city's ecological environment and the migration of birds. Therefore, it is urgent to control the noise. As one of natural noise-reducing materials, plants have been paid more and more attention. In urban landscape design, it is very important to choose plant species with good noise reduction effect to the sustainable development of urban ecology. The aim of this paper is to find out the characteristics of the plant with good noise reduction effect and apply it in urban landscape design. This study investigated the vibration of leaves of six plant species in a sound field using a Keyence (IG-1000/CCD) Laser Micrometer. The results of the experiments showed that the vibration speed of plant leaves increased obviously after being stimulated by sound source, about 5-10 times. In addition, when driven by the same sound, the speed of all leaves varied with the difference of leaf thickness, leaf size and leaf mass. The speed of all leaves would increase with the increase of leaf size and leaf mass, while those would decrease with the increase of leaf thickness.

Keywords : landscape design, leaf vibration , noise attenuation, plants configuration
Conference Title : ICMUDPS 2018 : International Conference on Modern Urban Design and Planning Studies
Conference Location : Barcelona, Spain
Conference Dates : February 27-28, 2018