

Use of paper mill sludge for the acclimation of nursery trees to be planted in urban soil.

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Abstract

Trees planted in urban areas often suffer in the phase of transplanting. Transplant is always a shock for plants, especially when they are moved from the nursery, where the environmental conditions are very favorable, to urbanized areas, where resources and maintenance are scarce. Moreover, some properties of urban soils, such as alkaline pH and compaction, make it difficult for trees to adapt. The industry of recycled paper produces tons of waste, which is a clean material composed mainly of cellulose, that can be potentially used as a component in plant growth substrate. In the present experiment, the paper mill sludge pelletized has been added to the growi media with the aim of increasing the water storage in the substrate and, at the same time, of contrasting soil compaction. Three species, *Quercus ilex*, *Lagerstroemia indica*, *Prunus serrulata* "Kanzan", have been planted in 40 cm Ø pots using two substrates: i) control, composed of peat, pumice, zeolites (chabasite) and compost; ii) experimental, composed of compost, zeolites (chabasite), pumice and pellet. The substrates were analyzed for pH, bulk density, organic carbon, total nitrogen, and plants responses were monitored by measuring trunk diameter, and chlorophyll content. The experimental substrate resulted suitable to grow the trees in nursery. To use the waste in the experiment we undertook a path to get permission from the local authorities who manage the industrial waste.