Hydrophobic Effects on Organic Matter Retention in Potting Media

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Abstract
Growing plants under controlled environments able to provide optimum status for their development. Potting media is a key factor which governs the root environment of potted plants. It provides the physical support, water and nutrients to the plant grown in the pot. Soil organic matter plays a significant role in the nutrient balance in the potting media. Organic matter retention is very much important throughout the growing period. The objective of this study is to improve the organic matter retention of the potting media by intermixing hydrophobic plant materials. *Pinu*s spp. and *Casuarin*a spp. leaf litters were used as hydrophobic plant materials intermixed into selected two potting mixtures at the rates of 20% and 30% according to complete randomized block design. During the study period organic matter content of three replicates from each potting mixture was measured in regular intervals by using loss on ignition technique. Powdered Pine leaf litter had 83% initial organic matter content and around 4000s of water drop penetration time (WDPT) value, where Casuarina had 74% organic matter content and more than 10000s WDPT value. Potting media one and two had 67-68% organic matter decomposition rates at the end of study period (after 52days) in their control samples. Although powdered Pine leaf litter showed higher organic matter content, it showed relatively low persistency of water repellency compared to Casuarina. This reveals that the proportion of hydrophilic organic matter contributes to total organic matter content in Pine can be higher than in Casuarina. Casuarina treated samples showed higher retention (55-57%) of organic matter compared with those treated with Pine (48-50%). Although the organic matter retention was higher at 30% rate compared with the 20% rate, increment in retention was not comparatively high (less than 4%) to justify the use of higher rate. Further studies are required to find the hydrophobic effects on hydrological properties in real field studies.

Keywords: Hydrophobic organic matter, Organic matter retention, Potting media

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