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N-POTS (Nature Based - Pots) : Organic Pot Innovation as Polybag Plastic Replacement Made from Wood Waste in Supporting Zero Waste Forestry

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Abstract

Indonesia is a country with a large forest area around 124,023,000 ha and forestry is a widely grown industry. Indonesian forest products consist of wood, rattan, bamboo, gum, etc. Wood is needed as a basic material for furniture, home, bearing rail, etc. N-POTS are designed as cultivation media, biodegradable organic planting media and as a substitution for plastic polybags. The raw material of the N-Pots are dried bark, compost, paper, natural adhesive and water. The addition of compost and husk fuel causes a decrease in the strength of organic pot. Bark as a by-product from logging process has the potential of combining with compost, that has elements required by the crops in their early stages of growth. Tanin is used as an adhesive for gluing purpose. Moreover, litter and compost are added to increase rigidity. The combination of basic materials newsprint and compost (50:50, v/v) with tannin gives the best growing influence with compared to other treatments. Newspapers were used as one of the mixing media of making N-Pots to recycle waste paper. Another use of N-Pots is that the media contained in the pot can be used as a planting medium. In addition to that, N-Pots are expected to function as a growing container which provides the nutrients needed for the plant growth and increase the diversity of soil microorganisms. In the study, compost can be used as a base material of organic potting mix and it can add nutrients and stimulate plant growth. The results of the analysis of nutrients in the basic ingredients of organic potting showed that the addition of compost increases the content of N, P and K, by 134%, 450% and 371.4%, respectively, while addition of litter increases the content of N, P and K by 38.3% , 66.7% and 57.1% respectively.

Keywords: Wood, Zero waste forestry, Forestry waste, Polybag, N-POTS