

Improvement of Rice Seedling Media

L.F. Chen, Y.C. Chiu, D.Y. Zhong, and J.H. Guan

Abstract

Searching for a suitable media for rice seedling culture is in urgent need, recently. There are four agricultural wastes available for making rice seedling media, including processed sugarcane residue, cattle and pig faeces, and rice hull. These agricultural wastes were made into compost first, and ten different media were made for rice seedling culture. Two rice varieties, Taiken 5 (japonica) and Taisen 2 (indica) were used in this study. Three weeks after sowing, the rice seedlings were harvested. In addition to the measurement of the rice seedling characteristics, such as plant height, stem diameter, fresh weight and dry weight, the available nutrients content of rice seedlings and residual media were analyzed. The experimental results showed that, all the four agricultural wastes are good substitute media for soil, especially using the compost of processed sugarcane residue combined with active white clay and cattle faeces, mixed with soil (2:1; w/w), obtained the test result both for the Taiken 5 and Taisen 2. The compost of pig faeces mixed with soil (1:1; w/w) was the next after the best media for growing rice seedling. The range of the physical and chemical properties of the two media were pH 6.5-7.0, EC 700-710 μScm^{-1} , organic matter 7.1-7.2 %, and bulk density 0.9-1.0 gcm^{-3} . It indicated that the physical and chemical properties of media did affect the growth of rice seedling more than those available nutrients content of the media in the rice seedling stage. Furthermore, it is better to mix with soil while the agricultural wastes are used as rice seedling media. Direct utilization of the compost made from agricultural wastes as rice seedling media, or the media covered with soil may not promote the growth of rice seedling significantly.

Key words: rice, seedling media, organic wastes