

Effect of soilless media on growth and some physiological traits of rubber (*Hevea brasiliensis*) seedlings

ABSTRACT

This study evaluates the effect of newly prepared soilless media on rubber (*Hevea brasiliensis*) as alternative growth media to some of the poor soils in the tropics (including those used in rubber nursery in Malaysia). The materials used as media were selected based on their good physiochemical properties and local accessibility. Three different media and soil, which was designated the control treatment, were used. The soilless media significantly influenced the growth and biomass production of the rubber seedlings. The highest rate of seedling growth was recorded in the medium of 10% burned rice husk (BRH), 30% peat moss and 15% vermiculite (coded as M1). The effect was equally noticeable in root morphology, especially with regard to root length, surface area and the number of tips. The pH and EC were 6.5 and 2.3 dS m⁻¹, respectively. Higher concentrations of N and P were apparent in this medium while the Mg concentration was only significantly higher in soil (the control). Meanwhile, the urea-N used in the medium was lower than that used in the other media. However, the same amounts of rock phosphate (CIRP) were used in the respective media, and significant root growth was recorded. The least amount (5% N) used in the best medium (M1) could be maintained to reduce the use of fertilizer. These results show that the soilless mix that includes BRH with less urea-N as fortification would greatly increase plant growth. This is because it releases more essential plant nutrients due to the favorable pH when compared to the acidic soils used in many plantations in the tropics. The result shows that the soilless media used in this study could be adopted for rubber nursery seedlings.

Keyword: Soilless; *Hevea brasiliensis*; Physiology; Seedlings; Rubber