

Early root development of *Falcataria moluccana* (Miq.) seedlings under tillage and nitrogen concentrations

ABSTRACT

Every species has different rooting distribution, either deep rooted or shallow rooted plants. Thus, root is one of the vital components in tree growth. This study was conducted to determine the preliminary assessment of Batai (*Falcataria moluccana* Miq.) under small scale experiment. Small scale experiment was carried out at near greenhouse, Forestry Complex of Faculty of Science and Natural Resources, FSSA, Universiti Malaysia Sabah. Batai seedlings were transplanted in transparent rhizotron tubes (1 m high transparent polycarbonate solid sheet) using topsoil and river sand to mimic the natural condition. There were 36 experimental units (4 treatments and 3 replicates) and arranged in a Completely Randomized Design (CRD), which were placed on the wood pallet. Root Intensity (RI), Root Length Density (RLD), Specific Root Length (SRL) and dried aboveground biomass (g) were recorded. The effect of sole fertilizer and mixed treatment shows more root growth at early stage especially at topsoil layer. However, as for root biomass, control was higher the preliminary growth interaction, in second depth (25-50cm). As for SRL, sole tillage treatment shows better performance, however in RLD, the roots in sole tillage and mixed treatment are more concentrated at the upper layer. The knowledge obtained here will be useful for plantation sector in optimize the soil resources in the plantation ecosystems.