

Selection of Indigenous Tree Species and Microbial Inoculation for the Restoration of Degraded Uplands

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Abstract : Indigenous tree species are priority planting materials for the National Greening Program of the Department of Environment and Natural Resources. Areas for reforestation are marginal grasslands where plant growth is stunted and seedling survival is low. This experiment was conducted to compare growth rates and seedling survival of seven indigenous reforestation species. Narra (*Pterocarpus indicus*), salago (*Wikstroemia lanceolata*), kisubeng (*Sapindus saponaria*), tuai (*Bischofia javanica*), batino (*Alstonia macrophylla*), bani (*Pongamia pinnata*) and ipil (*Intsia bijuga*) were inoculated with Mykovam® (mycorrhizal fungi) and Bio-N® (N₂-fixing bacteria) during pricking. After five months in the nursery, the treated seedlings were planted in degraded upland acidic red soil in Cavinti, Laguna (Luzon). During outplanting, all mycorrhiza inoculated seedlings had 50-80% mycorrhizal roots while the control ones had 5-10% mycorrhizal roots. Mykovam increased height of narra, salago and kisubeng. Stem diameter was bigger in mycorrhizal salago than the control. After two years in the field, Mykovam®+Bio-N® inoculated narra, salago and bani gave 95% survival while non-mycorrhizal tuai gave the lowest survival (25%). Inoculated seedlings grew faster than the control. Highest height increase was in batino (103%), followed by bani (95%), ipil (59%), narra (58%), tuai (53%) and kisubeng was the lowest (10%). Stem diameter was increased by Mykovam® from 13-39% over the control. Highest stem diameter was obtained from narra (50%), followed by bani (40%), batino (36%), ipil (33%), salago (28%), kisubeng and tuai (12%) had the lowest. In conclusion, Mykovam® inoculated batino, bani, narra, salago and ipil can be selected to restore degraded upland acidic red soil in the Philippines.

Keywords : Azospirillum spp., Bio-N®, Mykovam®, nitrogen fixing bacteria, acidic red soil

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