

Plant Growth Promoting Potential of Indigenous Mine Tailing Nitrogen Fixing Bacteria and Commercial Biofertilizers on Narra (*Pterocarpus indicus*)

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Indigenous beneficial microbes such as nitrogen fixing bacteria (NFB) are known to function better than an introduced counterpart. Narra (*Pterocarpus indicus*) is a favored legume tree species for reforestation due to its fast growth in a wide environmental conditions, premium wood quality, dual association with arbuscular mycorrhizal fungi (AMF) and NFB and endemic in the Philippines. This experiment was conducted to compare the plant growth promoting potential of NFB isolated from mine tailing area with that of commercial biofertilizers. Selected plants from the mine tailing site in Barangay Capayang, Mogpog, Marinduque were collected, and the indigenous NFB were isolated from the roots. Four fast-growing NFB were four NFBs isolated from roots of plants growing in mine tailing site were inoculated singly or in combination and with or without biofertilizers [BioNTM (coded as B) and MYKORICH[®] (coded as M)] produced at the National Institute of Molecular Biology and Biotechnology (BIOTECH), University of the Philippines Los Baños (UPLB). The treatments were: control, BioNTM, MYKORICH[®], NFB1, NFB2, NFB3, NFB4, NFB1+2, NFB1+3, NFB1+4, NFB2+3, NFB2+4, NFB3+4, NFB1-4 (1+2+3+4), NFB1-4+B, NFB1-4+M, and NFB1-4+B+M. Results after 4 months showed that the four combined NFB produced the heaviest stem, leaves, nodules, and total plant dry weight. NFB count in the soil was highest in NFB4, tallest height and biggest stem diameter increments were in BioNTM and MYKORICH[®] inoculated seedlings, respectively. NFB2 gave the highest leaf area cm², while NFB1-4+M had the lowest. These outcome indicate that the indigenous isolates could be of potential use as biofertilizers in forestry practices and in agricultural production. However, the field performance of these indigenous mine tailing NFB should be evaluated.

Keywords: arbuscular mycorrhizal fungi, *Azospirillum*, biofertilizer, leguminous plant