Sericologia 59 (1): 23-29, 2019
ISSN 0250-3980

Research Paper

NITROGEN FIXING EFFICIENCY OF *AZOTOBACTER* STRAINS ISOLATED FROM RHIZOSPHERE OF ARJUN AND ASAN PLANTS OF WEST SINGHBHOOM, JHARKHAND, INDIA

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ABSTRACT

Application of bacterial biofertilizers for nutrient management and growth in tasar food plants is an eco-friendly, economic and sustainable approach. Hence, the present study was aimed at isolating efficient nitrogen fixing *Azotobacter* strains from rhizosphere of tasar host plants and explore their use as biofertilizers. Ten rhizosphere soil samples were collected from Arjun (*Terminalia arjuna*) and Asan (*Terminalia tomentosa*) plants of forest and block plantations in tasar silkworm rearing areas of West Singhbhum, Jharkhnad. About 28 *Azotobacter* strains were isolated and screened for their nitrogen fixing ability in three day old pure strain liquid cultures using micro-Kjeldahl method. Wide range of nitrogen fixation was observed from 2.3 to 23.0 μg N ml^{-1} with an average of 12.3 μg N ml^{-1}. Some *Azotobacter* isolates *viz.,* A11 (23 μg N ml^{-1}), A26 (19.5 μg N ml^{-1}), A24 (18.5 μg N ml-1), A12 (17.4 μg N ml^{-1}), A13 (16.8 μg N ml^{-1}), A4 (16.3 μg N ml^{-1}) and A2 (16.3 μg N ml^{-1}) have shown high nitrogen fixing ability. It was noticed that strains with high nitrogen fixing ability were derived irrespective of species of host plant, type of plantation and geographical regions. These potential native *Azotobacter* strains could be explored as biofertilizers to improve tasar host plant nutrition.

Key words: *Azotobacter*, nitrogen fixing ability and biofertilizer, rhizosphere, tasar culture.