Abstract 57 – Paper ID: 083

Bioactivity screening of endophytic bacteria associated with selected medicinal plants of Manipur

Wahengbam Pusparani Chanu[1], Debananda S. Ningthoujam[1]

[1]Microbial Biotechnology Research Laboratory (MBRL), Department of Biochemistry, Manipur University, Canchipur, Manipur–795003, India

Email: puspawahengbam2@gmail.com

Abstract

Endophytes, which reside within plant tissues without causing harm, exhibit several plant growth-promoting (PGP) traits. This makes them valuable tools in sustainable agriculture and environmental management. In the current study, 3 medicinal plants were selected for isolation of endophytic strains, viz. *Borassus flabellifer* (local name: *Kona pambi*), *Nicotiana tabacum* (local name: *Hidak mana*), and *Viola pilosa* Blume (local name: *Huikhong*). 61 endophytic bacteria were isolated and screened for antimicrobial activity against bacterial test pathogens, viz. *Micrococcus luteus* (MTCC 106), *Bacillus subtilis* (MTCC 121), *Escherichia coli* (MTCC 739), and antifungal activity against fungal test pathogens, viz. *Pyricularia oryzae* (MTCC 1477), *Curvularia oryzae* (MTCC 2605), and *Aspergillus niger* (MTCC 1344). The isolates were then evaluated for PGP potential. Of 61 isolates, 21 produced indole-3-acetic acid (IAA), 30 could solubilize phosphate, and all 61 were found to produce ammonia. 3 isolates (VP11, VP17, and BF2) exhibited broad-spectrum antimicrobial activities as well as PGP traits. These potent isolates were subjected to rice seed vigour assays. Rice seeds treated with these isolates showed considerably enhanced vigour indices, VP11 (780), VP17 (959), and BF2 (1041) over the control (581). The morphological, physiological, biochemical, and molecular characterizations of these endophytic isolates were done. Details of these experiments will be presented in the paper.

Keywords: Endophytic bacteria, Medicinal plant, Antimicrobial activity, Antifungal activity

ISBN: 978-81-989164-2-6; DOI: 10.21467/abstracts.8.1