

## Conference Abstract

**Optimization of Indole-3-acetic acid production by Phyllosphere bacteria from Maize, Tomato and Cabbage**

Sukanja. P and Ravimannan. N\*

Department of Botany, Faculty of Science, University of Jaffna Jaffna 40000, Sri Lanka

\*nravi@univ.jfn.ac.lk

**Abstract**

Auxin, one of the most important phytohormones enhances the root architecture, nutrient acquisition and plant growth. The ability to synthesize Indole-3-acetic acid (IAA) is known to be associated with the plant growth promoting phyllosphere bacteria to some extent. The present work deals with isolation and characterization of such bacteria from the phyllosphere of three different crop species *Zea mays*, *Solanum lycopersicum* and *Brassica oleracea var. capitata* and optimization of IAA production from its isolates. In this study, the bacteria namely *Bacillus cereus*, *Bacillus pumilus*, *Pseudomonas putida*, *Staphylococcus equorum*, *Bacillus subtilis*, *Staphylococcus epidermidis*, *Lactobacillus brevis*, *Bacillus mycoides*, *Micrococcus luteus* and *Bacillus licheniformis* (AUXB1, AUXB2, AUXP1, AUXS1, AUXB3, AUXS2, AUXL1, AUXB4, AUXM1 and AUXB5 respectively) were selected by salkowski reagent as auxin producers. The optimization of IAA production was carried out at different pH, temperature, substrate and incubation period. Spectrophotometer analysis showed that all selected isolates produced maximum auxin at their optimum conditions. Out of ten isolates obtained, four of them were screened as efficient plant growth promoting phyllosphere bacteria on the basis of the production of IAA. Isolate AUXB3 showed better production of IAA (25.63 µg/ml) at pH 8 and at temperature 35°C in three days of incubation. Glucose was found to be the best carbon source for isolate AUXB3. Isolate AUXB4 showed best production of IAA (17.40 µg/ml) in three days of incubation at pH 6 and at temperature 37°C. Glucose was found to be the best carbon source for isolate AUXB4. Isolate AUXM1 showed 15.39 µg/ml IAA productions in four days of incubation at pH 7 and at temperature 37°C. Glucose was found to be the best carbon source for isolate AUXM1. Isolate AUXB1 showed 15.23 µg/ml IAA productions in three days of incubation at pH 8 and at temperature 37°C. Glucose was found to be the best carbon source for isolate AUXB1. Isolates AUXB3, AUXB4, AUXM1 and AUXB1 may be used to develop biofertilizers in future after further investigations.

**Keywords:** Auxin, Phyllosphere bacteria, *Bacillus*, Salkowski reagent