Isolation and characterization of fluorescent *Pseudomonas* associated with the roots of rice and banana grown in Sri Lanka

K. VLASSAK[1], L. VAN HOLM[2], L. DUCHATEAU[3], J. VANDERLEYDEN[4] and R. DE MOT[4,5]
[1]*CNPBS/EMBRAPA, Itaguai, Rio de Janeiro, Brazil,* [2]*Institute for Fundamental Studies, Kandy, Sri Lanka,* [3]*Prince Leopold Institute for Tropical Medicine, Antwerp, Belgium and* [4]*F.A. Janssens Laboratory of Genetics, Catholic University of Leuven, B-3001 Heverlee, Belgium.* [5]*Corresponding author*

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Abstract

Bacterial populations in different parts of the rhizosphere of rice and banana in Sri Lanka were examined. On rice, the number of aerobic bacteria and the population of fluorescent bacteria were higher in the rhizoplane as compared to the exorhizosphere. However, the opposite was observed with banana. Percentage of fluorescent bacteria was significantly higher on banana (10.8%) than on rice from the wet and dry zones of Sri Lanka (4.3% and 2.7%, respectively). In the endorhizosphere fraction of rice, bacterial populations were very low. Fluorescent bacteria were absent.

Based on 33 phenotypical tests, 89 fluorescent isolates were grouped into 5 clusters. The three major clusters covered the isolates belonging to the *Pseudomonas fluorescens-putida* group, whereas the remaining small clusters contained other UV-fluorescent bacteria. SDS-PAGE of total cell proteins enabled classification of the isolates into one of 12 different protein-polymorphic types. Only a partial correlation was found between the latter classification and the phenotypical one. Cyanogenesis was observed with strains of *P. fluorescens* only. Isolates *P. fluorescens* RW9S1 and *P. cepacia* RW5P1 displayed a potent antagonism against several fungi.