

ABSTRACT

THE ROLE INDIGENOUS FLUORESCENT PSEUDOMONADS WITH *Glomus aggregatum* ASSOCIATION ON PLANT GROWTH AND *Pectobacterium carotovorum* ATTACK ON MADURA TOBACCO

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Fluorescent pseudomonads is potential solubilizing phosphate and pathogen control bacteria, but nevertheless there is a wide variation. We conducted a study aims to analyze potential of phosphate solubilization, pathogen control and the interaction with *Glomus aggregatum* by Madura indigenous fluorescent pseudomonads. The method involved the insolation with King's B medium, screening based on clear zone formation on Pikovskaya medium, antagonistic to *Pectobacterium carotovorum*, selecting the best 4 isolates based on the shortest generation time and measuring the ability of dissolve phosphate for 72 hours on different pH medium, identify based on biochemistry and physiology character, 16S rDNA sequence analysis as well as greenhouse eksperiment of interaction with *G. aggregatum* in rhizosfer Madura tobacco. Four isolates found with the shortest generation time were Pfm4, 9,19 and 20 isolate. Except Pfm9 isolates at pH 6 phosphate solubilization activity occurs for 72 hours, at pH 8 for 24 hours, when 24-72 hours after cultivation occurs immobilization. The Pfm9 isolates at pH 6 occurs phosphate solubilization activity punctuated immobilization, at pH 8 occurs phosphate solubilization activity for 48 hours, when 48-72 hours after cultivation occurs immobilization. Pfm 20 isolates had the highest phosphate dissolving and antagonism capacity, although the generation time is longer than the other. Based on biochemical and physiological characters, Pfm 4 and 19 isolate were identified as *Pseudomonas aeruginosa*, while Pfm 9 and 20 isolate were as *P. fluorescens*, however based on 16S rDNA sequencing all of Pfm isolates were *P. aeruginosa*. From greenhouse experiment, *P. aeruginosa* Pfm20 and *G. aggregatum* interacts positively, increase the availability and uptake of phosphate as well as controlling the *P. carotovorum*, amended 10 mL suspension of *P. aeruginosa* Pfm20 at cell density of 10^8 cfu / mL and 30 g of inoculant *G. aggregatum* at a spores density of 10 spores / g inoculant per tobacco plant can improve the efficiency in the cultivation of tobacco Madura, substitute synthetic phosphate fertilizer application and as a biological control of hollow stalk disease *P. carotovorum*.

Key word

Fluorescent pseudomonads, *Glomus aggregatum*, *Pectobacterium carotovorum*, ineration, rhizosphere.