

Isolation and Characterization of Buprofezin Tolerant Bacteria from Rhizosfer of Paddy at Marginal Land of Banyumas Regency

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Abstract	<p>Buprofezin is a pesticide used to control planthoppers. The buprofezin residue may reduce the soil fertility by decreasing the essential microbes in the soil. This study aimed to isolate and characterizes buprofezin tolerance bacteria from rhizosfer of paddy at five marginal land of Srowot, Pageralang, Gunung Tugel, Tamansari, and Sokawera village, Banyumas Regency, Central Java. The bacterial isolate screened by growing on nutrient agar containing 2 ppm of buprofezin. The growing colonies were macro-morphologically observed. The growth curve and the generation time of the dominant colonies were analyzed. The selected colonies were cultured in nutrient broth containing 0, 5, 10, and 15 ppm of buprofezin. The selected colonies were characterized by gram staining, endospore staining, and biochemical test. Thirty collected-bacterial isolates showed five dominant colonies (SR1, PA1, GT2, TS4, SW1). The selected dominant isolates, SR1 colony was tolerant to buprofezin at 5 ppm and 10 ppm and GT2 at 5 ppm of buprofezin. The SR1 and GT2 were rod-shaped, gram-positive and endospore forming bacteria, white, and medium in size. The biochemical tests showed the SR1 were motile, had catalase activity, can ferment glucose, sucrose, and mannitol without gas forming, unable to ferment lactose, hydrolyze starch, positive result for MR test, but negative for urease, VP test, simmons citrate, H₂S production, oxidase, and indole. The GT2 were motile, positive result for catalase test, carbohydrate fermentation (glucose, sucrose, mannitol, lactose) with gas forming, MR/VP test, simmons citrate, oxidase, and indole, but negative for starch hydrolysis, urease, and H₂S production. The SR1 and GT2 were aerobic/anaerobic facultative bacteria. SR1 and GT2 were probably <i>Bacillus</i> sp.</p>
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