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RESEARCH ARTICLE

Morphological, cultural and physiological characterization of *Pseudomonas savastanoi* pv. *glycinea*, the cause of bacterial blight of soybean

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ABSTRACT

Pseudomonas savastanoi pv. *glycinea* isolated from tan coloured spots on the cotyledons of soybean was gram negative, short rod , 0.6-0.8 × 1.2-30 µm, non-spore former and motile by a single polar flagellum. King's B medium was best supporting for the growth of bacterium. Growth of the bacterium was maximum at temperature 25ºC and pH 6.8. The pathogen was unable to liquify gelatin and produced acid from glucose and sucrose but not from starch and not able to produce gas from any of the carbon sources tested and also failed to hydrolyse starch and H_2S production. Growth of the bacterial isolate was maximum in King's B medium supplemented with arabinose, ammonium sulphate and tryptophan.

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INTRODUCTION

Pseudomonas savastanoi pv. *glycinea* causing bacterial blight of soybean is responsible for reducing the economic yield of the crop world wide where soybean is extensively grown (Kendrick and Gardner, 1921 and Dowson,1957). Currently blight is most common bacterial disease of soybean especially in cool and wet weather. In present investigation, the bacterium was studied for morphological, cultural and physiological characteristics.

MATERIALS AND METHODS

Morphological characters of the bacterium were studied using different staining procedures and motility test. Gram's staining was used for diagnostic identification of bacterium. Colony of bacterium growing on agar medium was suspended in a drop of water on a slide and air dried for spore determination. Slide was flooded with 5.0 per cent (w/v) aqueous malachite green, allowed reacting for 30-40 seconds and then the slide was heated until it steams and counter stained by flooding with 0.5 per cent (w/v) aqueous safranine for 15 seconds. The slide was rinsed thoroughly with water, blot dried and the bacterial cells were observed under oil immersion. For observing the presence of flagella, 12 to 18 h young culture grown on nutrient agar in slants was taken and distilled water was poured slowly, without disturbing bacterial growth and the tubes were kept standing for 2-3 minutes to allow the motile cells to come into suspension. A pipette was dipped into the bacterial suspension and placing a drop of suspension on slide, tilted and air dried. Smear was marked on the opposite side and covered with mordant solution (A+B) (mordant solution A= Mercuric chloride C.P (saturated aqueous solution) 2.0 ml, tannic acid 2.0 ml, aluminum potassium sulphate 5.0 ml, B= basic fuchsin (saturated aqueous solution) 0.04 ml and allowed it to act for 8-10 minutes. After washing the slides with distilled water smear covered