Pseudomonas fuscovaginae sp. nov., nom. rev.

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The name Pseudomonas fuscovaginae Tanii, Miyajima and Akita 1976 was omitted from the Approved Lists of Bacterial Names. Therefore, this name is here revived for the organism to which it originally referred. The cells of strains of this species are aerobic, gram negative, and rod shaped with polar flagella. They oxidize glucose in oxidation-fermentation medium, and they produce a green fluorescent pigment, oxidase, and arginine dihydrolase. Denitrification, β-glucosidase, pit formation on polypectate gel and growth at 37°C are negative. Characteristics that distinguish this species from other fluorescent pseudomonads which are positive for arginine dihydrolase and oxidase are its ability to produce a hypersensitivity reaction in tobacco plants and its inability to utilize 2-ketogluconate or inositol. These bacteria were pathogenic to Oryza sativa and eight other species of the Gramineae. The type strain is NCPPB 3085 (= PDDCC 5940).

The name Pseudomonas fuscovaginae was validly published by Tanii et al. (7) for the causative agent of sheath brown rot of rice plants. This name was omitted from the Approved Lists of Bacterial Names (5). In accordance with Rule 28a of the International Code of Nomenclature of Bacteria (2), we propose to revive the name according to the following description.

Pseudomonas fuscovaginae (ex Tanii et al. 1976) nom. rev. (fus. co. va. gi' nae, L. adj. fuscus fuscous; L. fem. n. vagina vagina, sheath; M. L. fem. n. fuscovaginae of a fuscous vagina). Gram-negative, nonsporeforming, rod-shaped cells with round ends, 0.5 to 0.8 by 2.0 to 3.5 μm. Cells occur singly or in pairs and are motile by means of one to four polar flagella.

After 4 to 5 days at 28°C on nutrient agar moderate growth consisting of white to light brown, smooth, glistening, raised, translucent, circular, butyrous colonies 3 to 5 mm in diameter is produced. A green fluorescent, diffusible pigment is produced on King’s medium B. No slime is produced on nutrient agar containing 5% sucrose.

Metabolism of glucose is oxidative in Hugh-Leifson oxidation-fermentation medium. Catalase and Kovacs oxidase tests are positive. Denitrification is negative; nitrate is not reduced. The methyl red and Voges-Proskauer tests are negative. Lipolysis of margarine and Tween 80 is positive. No growth occurs in nutrient broth supplemented with 5% NaCl. Peptonization and reduction of litmus milk without coagulation are positive. Pits are not produced on polypectate gels at pH 8.5. Gelatin and starch are hydrolyzed, but esculin and arbutin are not. Arginine dihydrolase and ammonia are produced, but cytochrome oxidase, phenylalanine deaminase, urease, 2-ketogluconate, H2S, and indole are not produced. Levan is not produced from sucrose.

No organic growth factors are required. Acid is produced from glucose, arabinose, rhamnose, and mannitol but not from maltose, sucrose, raffinose, inulin, salicin, dextrin, adonitol, erythritol, inositol, dulcitol, or α-methylglucoside. Citrate, malonate, succinate, urate, acetate, β-alanine, L-valine, and L-lysine are utilized, but tartrate, hippurate, 2-ketogluconate, and polygalacturonic acid are not.

Aerobic. The optimal growth temperature is approximately 28°C. No growth occurs at 37°C. Characteristics that vary among strains of P. fuscovaginae are shown in Table 1.

<table>
<thead>
<tr>
<th>Character</th>
<th>Reaction of type strain</th>
<th>% Of strains positive (n = 16)</th>
<th>Strains that gave the less common result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tyrosinase</td>
<td>−</td>
<td>19 BA-1-1, 7101, 7106</td>
<td></td>
</tr>
<tr>
<td>Egg yolk reaction</td>
<td>+</td>
<td>81 BA-1-1, 705, 7101</td>
<td></td>
</tr>
<tr>
<td>Acid from:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xylose</td>
<td>−</td>
<td>94 6801</td>
<td></td>
</tr>
<tr>
<td>Mannose</td>
<td>+</td>
<td>94 IK-4</td>
<td></td>
</tr>
<tr>
<td>Lactose</td>
<td>−</td>
<td>81 BA-1-3, IK-2, 6801</td>
<td></td>
</tr>
<tr>
<td>Trehalose</td>
<td>+</td>
<td>94 705</td>
<td></td>
</tr>
<tr>
<td>Sorbitol</td>
<td>−</td>
<td>6 705</td>
<td></td>
</tr>
<tr>
<td>Growth in KCN broth</td>
<td>−</td>
<td>19 BA-1-2, BM-1, 7103</td>
<td></td>
</tr>
</tbody>
</table>

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A hypersensitive reaction is produced when cells are inoculated into tobacco leaves, but potato soft rot is not produced.

Pathogenicity was demonstrated on Oryza sativa, Hordeum vulgare, Triticum aestivum, Avena sativa, Zea mays, Lolium perenne, Bromus marginatus, Phleum pratense, and Phalaris arundinacea but was not apparent on two species of the Solanaceae, six species of the Leguminosae, Petroselinum crispum, Brassica oleracea, Lactuca sativa, and six species of the Lepidaceae. Table 2 lists the characters which have diagnostic value for distinguishing P. fusco- vaginae from other fluorescent pseudomonads that are positive for arginine dihydrolase and oxidase

Strains were isolated from diseased leaf sheaths of O. sativa in Japan.

The type strain of this species is 6801 (= NCPPB 3085 [National Collection of Plant Pathogenic Bacteria, Harpenden, England] = PDDCC 5940 [Plant Diseases Division Culture Collection, Auckland, New Zealand]).

We are most grateful to M. Goto (University of Shizuoka, Shizuoka, Japan) for invaluable help during this investigation. We also thank T. Narita (Hokkaido Plant Protection Association, Sapporo, Japan) for constructive criticism and comments and T. Ui (University of Hokkaido, Sapporo, Japan) and T. Baba (Hokkaido Central Agricultural Experiment Station, Naganuma, Japan) for advice and encouragement.

LITERATURE CITED


