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Rathayibacter iranicus isolated from symptomless wheat seeds in Turkey

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Rathayibacter iranicus (Ri), originally reported in Iran in 1961 (Sharif, 1961), has not been reported outside Iran and only one strain is known to exist. Like *R. tritici* (Rt), Ri causes a gumming disease of wheat in association with the nematode *Anguina tritici* (Paruthi *et al*., 1989). During 2003, a survey of wheat seed for *Rathayibacter* species (RS) in Turkey using samples from 799 farmers in six provinces in Central Anatolia was conducted. The samples showed neither the brown to black galls typical of *A. tritici* infection nor the yellowish galls typical of Ri and Rt. To determine the presence of RS, 120 g samples were washed in 100 mL of sterile 0·85% NaCl with 0·02% Tween 20 and plated onto 523 agar (Schaad *et al*., 2001) modified by adding 30 mg nalidixic acid, 15 mg polymixin B sulphate and 100 mg cycloheximide per litre. After incubation at 27°C for seven days, several typical colonies of RS were cloned by streaking onto YDC agar (Schaad *et al*., 2001). Twenty five strains were presumptively identified as RS based on a Gram positive reaction, oxidase negative reaction and yellow growth.

Three strains, TRS2 from Konya, TRS10 from Hisarkikaya, and TRS25 from Ankara, were used for further identification and speciation. The other 22 strains were archived for later studies. The type strains of Rt, (International Collection of Phytopathogenic Bacteria [ICPB] 70004^T; FH-5; CT 102^T) and Ri (ICPB 70005^T; FH-6^T; CI 148^T), were included as controls. All three strains were biochemically typical of Ri and Rt by producing acid from D-mannose, inulin, galactose, and mannitol. However, the strains failed to utilize acetate, or to hydrolyze casein, failed to grow in greater than 1% sodium chloride amended NBY, or on CNS agar, which is characteristic of Ri but not Rt (Davis & Vidaver, 2001). The new strains contained the fatty acids iso-14:0 and 16:0; anteiso 15:0 and 15:1, and 17:0, and 16:0, also typical of Ri. Identification of the three strains as Ri was further supported by 16s rDNA sequence similarities to Ri and Rt of 100 and 99·3%, respectively (GenBank Accession Nos. FJ595101 - Ri, ICPB 70005 and FJ595102 – Rt, ICPB 70004). Identification as Ri was confirmed by AFLP analysis (EcoRI + 0 and MseI + C) showing a pattern of 90% similarity to Ri but only 46% to Rt. This is the first report of Ri outside of Iran. Cultures have been deposited in the ICPB at Ft. Detrick, MD, USA, as ICPB 70146 (FH-154; TRS2), 70 154 (FH-162; TRS10), and 70 169 (FH-177; TRS25).

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