



First report of stem and root rot of bell pepper caused by *Fusarium equiseti* in Pakistan

Farah Naz¹ · Aliya Tariq¹ · Ch. Abdul Rauf¹ · Tasawar Sultana²

Published online: 19 June 2018

© Società Italiana di Patologia Vegetale (S.I.Pa.V.) 2018

In the summer of 2015 and 2016, bell pepper (*Capsicum annuum* L.) plants showed symptoms of brown necrotic lesions on the stem and roots that later wilted and rotted with an incidence of 11 to 31% in fields of Fateh Jang (Attock, Pakistan). Diseased tissues (5 mm²) were surface disinfected with 1% NaOCl (1 min), rinsed with sterile distilled water three times, air-dried on filter paper and cultivated on potato dextrose agar (PDA). Colonies of sixteen isolates on PDA were white with fluffy aerial mycelium and beige pigmentation. Macroconidia were 29.5 (19.4 to 42) × 2.1 (1.5 to 2.6) μm, 5- to 6-septate and formed on branched conidiophores having dorsiventral curvature with prominent tapered apical cell and basal cell of foot shaped. Chlamydo-spores were in clumps, globose to subglobose (5 to 12.5 μm). The pathogen was identified as *Fusarium equiseti* (Corda) Sacc. based on morphological characteristics (Leslie and Summerell 2006). The rDNA of internal transcribed spacer (ITS) region and partial translation elongation factor 1-α (EF-1α) gene were amplified using primers ITS1/ITS4 (White et al. 1990) and EF1-728/EF1-986 (Carbone and Kohn 1999), respectively. The resulting sequences were submitted in GenBank with accession nos. KY412196 and KY426118. The sequences had high similarity with those of *F. equiseti* (ITS 99%, KP026922; EF1-α 100%, KX576659). Pathogenicity tests

were conducted on healthy seedlings of bell pepper. Three seedlings per isolate were inoculated with 10 ml of 10⁶ conidia/ml suspension by root drenching method and control plants were inoculated with 10 ml of sterile distilled water. Within 10–12 days, similarly to the symptoms observed in the field, inoculated plants developed leaf wilting, brown necrotic lesions on vascular tissues, finally rotted and died. Non-inoculated control seedlings were symptomless. *F. equiseti* was consistently re-isolated from symptomatic tissues of inoculated plants. To our knowledge, this is the first report of *F. equiseti* on bell pepper in Pakistan.

References

- Leslie JF, Summerell BA (2006) The *Fusarium* laboratory manual. Blackwell Publishing, Ames
- Carbone I, Kohn LM (1999) A method for designing primer sets for speciation studies in filamentous ascomycetes. *Mycologia* 91:553–556
- White TJ, Bruns T, Lee S, Taylor JW (1990) Amplification and direct sequencing of fungal ribosomal RNA genes for phylogenetics. In: Innis MA, Gelfand DH, Sninsky JJ, White TJ (eds) PCR protocols: a guide to methods and applications. Academic Press, San Diego, p 315–332

✉ Aliya Tariq
aliya_tariq45@yahoo.com

¹ Department of Plant Pathology, PMAS-Arid Agriculture University, Rawalpindi, Pakistan

² Department of Biochemistry, Hazara University, Mansehra, Pakistan