

Research Article

## Cultural, Morphological and Molecular Variability of *Fusarium moniliforme* Sheld. Causing Foot Rot Disease of Basmati Rice in Punjab

<sup>1</sup>Anita Puyam, <sup>1</sup>PPS Pannu, <sup>2</sup>Jaspal Kaur and <sup>1</sup>Shikha Sethi

<sup>1</sup>Department of Plant Pathology, <sup>2</sup>Department of Plant Breeding and Genetics, Punjab Agricultural University, Ludhiana, India E-mail: anitapau6243@gmail.com

### Abstract

Foot rot of rice caused by *Fusarium moniliforme* has become a major problem on certain cultivars of rice under Punjab conditions. Different symptoms (elongation, stunting or both and death of plants) were observed in nursery and field. Thirty eight isolates of *Fusarium* were isolated from foot rot infected basmati plants collected from different districts of Punjab and tested for pathogenicity on susceptible cv. Pusa1121. All the isolates of *Fusarium* were characterized on the basis of morphological, cultural characters and growth rate on Potato dextrose agar (PDA), Soil extract agar (SEA) and Spezieller Nährstoffarmer Agar (SNA). The isolates produced micro-conidia of  $(2.59-11.75 \times 1.32-5.32) \mu\text{m}$  on SNA and macro-conidial of  $(7.34-62.97 \times 2.90-4.88) \mu\text{m}$  on Carnation Leaf Agar (CLA). Isolates were grouped into five groups based on colony colour and conidial size. Production of micro-conidial chains was observed on water agar infused with 0.2 per cent KCl. Formation of chlamydospores was not observed in any of the isolates. Genomic DNA was extracted from 38 *Fusarium* pure cultures and molecular variability was studied using 27 SSR primers. The primers 7H05, 11H01, 5H09, 3H19, 10H09, 10H01, 9H05, 1H02, 2H17, 2H15, 3H02, 11H03 and 10H07 showed PIC values equal to or higher than 0.50. These markers are highly informative as they indicate high polymorphism. The genetic dissimilarity index ranged from 25 to 75 per cent.

**Key words :** Bakanae, Carnation leaf Agar, *Fusarium moniliforme*, SSR

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