



First report of *Fusarium sambucinum* causing dry rot of potato in India

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The potato (*Solanum tuberosum*) crop is generally harvested during February and March in most regions of India. This is a time when temperature starts increasing to between 30°C and 40°C in the month of June followed by rains in July and August. The high temperature and humid conditions during this time favour dry rot and other types of rots of potatoes stored in heaps and country stores. This can lead to huge losses. Therefore, it becomes essential to store potatoes in cold stores for about five to six months. Nevertheless, the potatoes may still develop dry or soft rots if they have been mechanically damaged during a period of high temperatures.

During October 2009, dry rot disease was observed on potato tubers of cv. 'Kufri Ashoka' in cold stores at Sehore district of Madhya Pradesh. When removed after six months of storage, more than 90% of tubers were affected by dry rot. Also, in October 2010 similar symptoms were observed in about 1-2% of potato tubers of cv. 'Kufri Bahar' stored in cold stores at Shahbad in Haryana. The tubers were shrivelled, mummified and hard (Fig. 1). Isolations on potato dextrose agar (PDA) medium from infected tubers from both locations consistently yielded rapidly growing floccose to felt-like colonies, initially white but turning peach to orange later (Fig. 2). Conidia were abundant, 3-5 septate with apical cell pointed and basal cell foot shaped (Fig. 3). The fungus was grown on PDA at 18 ± 1°C for about 14 days prior to inoculation. Pathogenicity was demonstrated by inserting a 3 mm mycelium disc inside 5 mm long and 2-3 mm deep cuts on each of five surface sterilized potato tubers of cv. 'Kufri Jyoti'. Five non-inoculated tubers served as control. The tubers were incubated at 18 ± 1°C. Symptoms developed within three to five days and re-isolations yielded the original fungus. Control tubers remained healthy (Fig. 4). Based on morphological characters (Booth, 1977; Leslie &

Summerrell, 2006) and pathogenicity test, the fungus was tentatively identified as *Fusarium sambucinum* Fuckel (anamorph of *Gibberella pulicaris* (Fr.) Sacc.). The identification was further confirmed by comparison of ITS (internal transcribed spacer) sequence data with reference isolates. The ITS region of rDNA was amplified by polymerase chain reaction (PCR) with primers ITS1/ ITS4 and sequenced. BLASTn analysis of the sequence obtained showed a 100% homology with *F. sambucinum*. The sequences were deposited at GenBank (Accession Nos. JF433931 and JF433932). Dry rot is known to be caused by several species of *Fusarium*, nine of which have been reported from different parts of India (Singh *et al.*, 1987). Although *F. sambucinum* has been isolated from affected roots of *Eucalyptus naundina* at Hisar, India (Sharma *et al.*, 1986), to the best of our knowledge, this is the first report of *F. sambucinum* causing dry rot of potato in cold stores in India.

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Figure 1



Figure 2

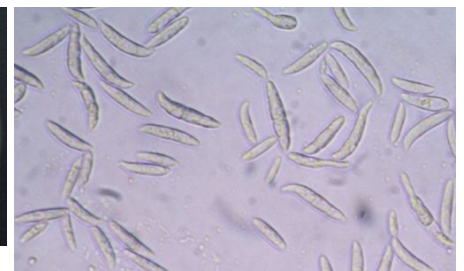


Figure 3



Figure 4

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