J. Cotton Res. Dev. **29** (2) 309-310 (July, 2015)

Cotton as host of *Colletotrichum capsici* (Syn.) Butler and Bisby

OM PRAKASH, KARTAR SINGH*, ASHOK KUMAR AND S. K. KHIRBAT
Department of Plant Pathology, CCS, Haryana Agricultural University, Hisar-125004
**E-mail: kartar1532@gmail.com*

ABSTRACT: Ten *kharif* crops (cotton, mungbean, cowpea, redgram, radish, tomato, sesamum, soyabean, groundnut and black gram) and 13 *kharif* weeds (sawank, motha, doob, palpotani, kagaroti jangli, surajmukhi, kharjal, mirch booti, ulta kanta, khaki weed, beggar'"s weed, kanghi butti and bill goat) grown in pots under screen house at CCS Haryana Agricultural University, Hisar during 2010-2011and 2011-2012. The fungus obtained from the Anthracnose affected chilli was able to infect 6 *kharif* crops (cotton, sesamum, soyabean, cowpea, radish and blackgram) and 6 *kharif* weeds (sawank, kagaroti, kharjal, mirch booti, begger's weed and bill goat).

Key words: Chilli, *Colletotrichum capsici, kharif* crops, weeds

India ranks 2nd in the area under cotton after China among the cotton growing countries of the world while it occupies 24th place in the matter of yield/ha with national productivity of 560 kg lint/ha (Anonymous 2009). The causal agent *Colletotrichum capsici* (Syd.)Butler and Bisby have been reported to infect cotton (Mukewar and Sheoraj, 2000, Anonymous, 2009a).Chilli (*Capsicum annuum* L.) is an important spice, vegetable as well as cash crops of Haryana grown in *kharif* season. The chilli crop is subjected to various diseases caused by fungi, bacteria, viruses, nematodes. Among the major diseases of chilli, fruit rot of chilli caused by *Colletotrichum capsici* (Syd.) Butler and Bisby is one of the most destructive disease of chilli in India. The disease causes severe damage on red chilli fruits. It has been reported to cause 20-60 per cent losses of yield in Punjab and Haryana. Keeping in view importance of the disease, studies made to find out the host of *Colletotrichum capsici.*

MATERIALS AND METHODS

Red fruits of chilli showing symptoms of fruit rot of chilli were collected from the vegetable field of Haryana Agricultural University, Hisar during 2010-2011. Infected portions of red fruits were cut into small pieces after microscopic examination. These pieces were surface sterilized with 0.1 per cent mercuric chloride ($HgCl_2$) solution for 30 sec and then rinsed 3-4 times in distilled sterilized water. The bits were then aseptically placed on potato dextrose agar slants and incubated at 28±1^{0}C. Single spore isolation was done to purify the culture.

The experiment was conducted in screen house using earthen pots during 2010-2011 and 2011-2012. Ten *kharif* crops (cotton, mungbean, cowpea, red gram, raddish, tomato, sesamum, soyabean, groundnut and black gram) and 13 *kharif* weeds (sawank, motha, doob, palpotani, kagaroti jangli, suraj mukhi, kharjal, mirch booti, ulta kanta, khaki weed, beggar'"s weed, kanghi butti and bill goat) were grown in the pots. Ten seeds of each crop were sown in each pot containing 5.5 kg soil. After germination 5 plants/pot were maintained. Three pots were taken for each crop as well as weeds. Pots were irrigated with equal amount of water when needed. Thirty five days old plants were inoculated with spore suspension (3´10^4 conidia/ml) of *Colletotrichum capsici* prepared from 8 days old culture grown at 28±1^{0}C. These pots were kept at 28±1^{0}C with 100 per cent relative humidity in humid chamber for three days. After that the pots were removed from humid chamber and sprayed with distilled water thrice (morning, noon and evening) in a day. Observations were taken 10 days after inoculation on the tested host.

RESULTS AND DISCUSSION

It is evident from Table 1 and Table 2 that the fungus infected 6 *kharif* crops (cotton, sesamum, soyabean, cow pea, radish and blackgram) and 6 weeds (sawank, kagaroti, kharjal, mirch booti, bill goat and beggar's weed). The causal agent *Colletotrichum capsici* have been reported to infect brinzal, frenchbean, mungbean, betalvine (Pring *et al.,* 1995) soybean, bottlegourd, kondhra, chilmil, santhi and cotton (Anonymous 2009 and Kumar, 2008). Similar were the observations in the present investigations. Out of 15 hosts belonging to various families cotton, radish, black gram, sawank, kagaroti, kharjal and mirch booti showed the symptoms of the disease. These workers also concluded that five different host species cotton, radish, bottlegourd, black gram and moth bean act as alternate hosts.

Table 1. Reaction of different kharif crops to *Colletotrichum capsici*

Common name	Scientific name	Reaction
Cowpea	*Vigna radiate*	+
Moth bean	*Phaseolus acontifolius*	–
Cotton	*Gossypium hirsutum*	+
Redgram (Pigeonpea)	*Cajanus cajan*	–
Radish	*Raphanus sativus*	+
Tomato	*Lycopersicon esculentum*	–
Blackgram	*Vigna mungo*	+
Sesamum	*Sesamum indicum*	+
Soybean	*Glycine max*	+
Groundnut	*Arachis hypogaea*	"

[Infection (+) or No infection (-)]

Table 2. Reaction of different kharif weeds to *Colletotrichum capsici*

Common name	Scientific name	Reaction
Sawank	*Echinochloa colonum*	+
Motha	*Cyperus rotundus L.*	"
Doob	*Cynodon dactylon*	"
Palpotan	*Physalis minima L.*	"
Kagaroti	*Corchorus olitorius L.*	+
Jangli Surajmukhi	*Helianthus annus*	
Kharjal	*Pluchea lanceolata*	+
Mirch booti	*Spherochtea zerbica*	+
Kanghi Butti	*Abutilon bidentatum*	"
Ulta Kanta	*Achyranthus aspera*	"
Khaki weed	*Alternenthera pungens*	"
Beggar'"s weed	*Bidens pilosa*	+
Bill goat	*Ageratum conyzoides*	+

[Infection (+) or No infection (-)]

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Recieved for publication : July 23, 2013
Accepted for publication : March 19, 2014