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RESEARCH NOTE

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Evaluation of some plant extracts *in vitro* against *Colletotrichum capsici* causing fruit rot of *Bhut jalakia* (*Capsicum chinense*) in Assam

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Bhut jalakia or Bhoot jalakia (king chilli) is a well known name in the world. It was formerly recognized by the Guinness World Record as the world's hottest pepper in 2007 (Bosland and Baral, 2007). This pepper is commonly grown in Assam, Nagaland and Manipur region of India and Sylhet region of Bangladesh. *Bhut jalakia* with a scovelli rating of 1,041,427 heat unit (SHU) having various kind of uses. It is used as spice, in various homeopathic preparations for treatment of stomach ailments and also as a remedy against summer heat. In NE India it is also smeared in the fences or incorporates in smoke to get rid of wild elephants. Scientists from Defence Research and Development Organization (DRDO) are also planning to use *Bhut jalakia* in hand bombs to flush out terrorists from their hide out and also to control riots. *Bhut jalakia* is susceptible to a number of diseases and among these the fruit rot caused by *colletotrichum capsici* is one of the destructive diseases of the crop in Assam. Infection occurs both in green and ripe fruits. On the infected fruits initially small, circular dark brown spots are developed and later on the spots enlarge considerably. The spots finally become sunken with black margin. Concentric markings are observed on the spots and both the unripe and ripe fruits dropped. Infected plants invariably show drying of branches from the tip downwards and on the dead branches black acervuli are noticed. In the present investigation, leaf extracts of fifteen locally available plants were evaluated *in vitro* for their effect on the growth of *Colletotrichum capsici* at BN college of Agriculture, Assam Agricultural University, Biswanath Chariali, Assam.

The leaves of the test plants were ground individually in sterile water (1:1) and squeezed through sterile cotton wool. Then they were filtered through Whatman no.1 filter paper

Table 1 : Effect of plant extracts on mycelial growth of *Colletotrichum capsici*.

Name of the plant	Mycelium growth (mm)	Inhibition of mycelium growth (%)
Aegle marmelos	29.94	58.76
Allium sativum	34.40	52.62
Aloe vera	28.40	60.88
Azadirachta indica	15.32	78.90
Azaratum conyzoids	24.94	65.65
Canabis sativus	28.17	61.20
Curcuma longa	58.60	19.28
Datura matel	24.72	65.95
Emblica officinalis	28.23	61.12
Eucalyptus globules	41.18	43.28
Jatropha carcus	61.14	15.79
Murraya koenigii	36.40	49.86
Ocimum sanctum	17.44	75.98
Tagetes erecta	51.35	29.27
Zingiber officinale	26.56	63.42
Control	72.60	-
CD (P=0.05)	1.91	-

and mixed with Potato dextrose agar (PDA) medium. 20ml of the medium was poured in sterilized Petri plates. After solidification of the medium, 5mm PDA culture disc of actively grown pathogen was put on the medium aseptically and incubated at 25±1°C for 7days. After the incubation period the radial growth of the mycelium was measured and per cent reduction over control (Petri plates having PDA medium without leaf extract) was calculated.

Extracts of all the test plants were effective in reducing the mycelia growth of the pathogen (Table 1). Highest reduction of mycelium growth (78.90%) of the fungus was observed in the leaf extract of *Azadirachta indica*. This was followed by *Ocimum sanctum* (75.98%), *Datura matel* (65.95%), and *Azaratum conyzoide* (65.65%). Other plant extracts which showed more than 60 per cent inhibition of mycelium growth were *Zingiber officinale* (63.42%), *Canabis sativus* (61.20%), *Emblica officinalis* (61.12%) and *Aloe vera* (60.88%). Similar results were also reported by Tripathi and Tripathi (2004) and Mishra *et al.* (2011). Mishra *et al.* (2011) observed highest reduction of mycelial growth of *Colletotrichum capsici* with plant extracts of *Azadirachta indica* as observed in the present investigation.

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