



First report of *Colletotrichum* spp. causing diseases on *Capsicum* spp. in Sabah, Borneo, Malaysia

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Date of publication (online): 26 August 2009

Date of publication (print): 26 August 2009

ISSN 0974-7907 (online) | 0974-7893 (print)

Editor: V.B. Hosagoudar

Manuscript details:

Ms # o2273

Received 26 May 2009

Final received 08 July 2009

Finally accepted 21 August 2009

Citation: Yun, H.K., A.H. Ahmad, S. Muid & J.S.S. Seelan (2009). First report of *Colletotrichum* spp. causing diseases on *Capsicum* spp. in Sabah, Borneo, Malaysia. *Journal of Threatened Taxa* 1(8): 419-424.

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Author Details: See end of this article.

Author Contribution: The first author designed and conducted this study as a partial fulfillment of her BSc (Hons) degree, while the fourth author supervised her research work and gave technical advice. The second and third authors commented on the manuscript and provided extensive information during research.

Acknowledgement: The authors are grateful to Associate Professor Dr. Michael Wong, Mr. Liew Thor Seng, Mr. Lau Foo Chwang, Madam Lam Nyee Fan, Mr. Azrie Ahmad, Mr. Cornelius, Madam Fatimah Jumat and Miss Doreen Juhan for their kind help during this research.

Abstract: Blackish or orange liquid-like spots were found on (n=100) fruits of chillies (*Capsicum*) sold in five local markets in Kota Kinabalu, Sabah, Malaysia. *Colletotrichum gloeosporioides* and *C. capsici* were identified as the causal agents of an anthracnose disease. This is the first report of *Colletotrichum* spp. as the causal agent of anthracnose infected chillies in Sabah.

Keywords: Anthracnose, *Colletotrichum*, chillies, morphology

INTRODUCTION

The genus *Capsicum* comprises several species of chillies belonging to the family of Solanaceae. There are five important domesticated chilli species i.e. *C. annum*, *C. chinense*, *C. baccatum*, *C. frutescens* and *C. pubescens*. This genus is native to the Americas and is now cultivated worldwide (Sanogo 2003). In Sabah, chillies are planted intensively at Kundasang, Keningau and many other areas. Chillies are important ingredients in local food and are used regularly. Anthracnose is a common disease attacking chillies in Sabah but the causal agents, the species of the genus *Colletotrichum* have not been identified so far. According to Poonpolgul & Kumphai (2007), Thailand had encountered severe losses up to 80% due to a great fall in chilli production affected by *Colletotrichum* spp. whereas losses which were greater than 30% in plant production occurred in the United States due to anthracnose (Howard et al. 1992; Wilson et al. 1992).

More seriously, five species of *Colletotrichum*, namely *Colletotrichum coccodes*, *Colletotrichum crassipes*, *Colletotrichum dematium*, *Colletotrichum gloeosporioides* and *Colletotrichum graminicola* have been reported to cause infection in humans also. These infections are keratitis following traumatic implantation, subcutaneous and systemic infections among immunosuppressed patients (Liesegang & Forster 1980; Liao et al. 1983; Shukla 1983; Matsuzaki et al. 1988; Ritterband et al. 1997; Guarro et al. 1998; De Hoog et al. 2000; Castro et al. 2001; Yamamoto et al. 2001; Fernandez et al. 2002; Cano et al. 2004). The five species of the genus *Colletotrichum* known to cause similar symptoms on chillies are *C. gloeosporioides*, *C. acutatum*, *C. capsici*, *C. coccodes* and *C. dematium* (Hong & Hwang 1998; Gopinath et al. 2006). This study is aimed to report the causal agents of anthracnose disease in chillies for the first time in Sabah, Borneo.

MATERIAL AND METHODS

Sampling: Samples were collected from five local markets in Kota Kinabalu, Sabah, Malaysia, i.e. Central Market, Menggatal Market, Donggongon Market, Lido Market and Wong Kwok Market.

Fungi isolation: The samples were brought to laboratory in a sealed plastic bag. Lesions were excised, surface sterilized with 70% ethanol for 30s rinsed a few times with distilled water and dried on filter papers. They were cut into smaller pieces of approximately 5x5 mm size, cultured in petri dishes containing potato dextrose agar (PDA) and incubated at room temperature, in the dark, for 48 to 72 hr.

Morphological identification: An inoculum loop was used to scratch the mycelium of the colonies and mounted on the slides. Compound microscope and scanning electron microscope were used to observe the colony colour and form, appressorium features, shape, size and colour of spores from different isolates. Identification was made by comparing the characteristics of fungi following Charlie et al. (2001) and Deacon (1998).

RESULTS

One-hundred infected chillies with symptoms of anthracnose caused by *Colletotrichum*



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