

CHECKLIST OF DEUTEROMYCETOUS FUNGI OF BANGLADESH – III

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Bioresearch Communications
Volume 10, Issue 2, July 2024

DOI: doi.org/10.3329/brc.v10i2.74570

ABSTRACT

Sixty two species of anamorphic fungi under 17 genera belonging to the Form family Sphaeropsidaceae and Melanconiaaceae in Bangladesh from 1952 till date are enlisted in this account. The alphabetical checklist of the genera is provided herewith. Further updates will be added in the subsequent versions of the publication.

KEYWORDS: Checklist, Fungi, Deuteromycetes, Bangladesh.

RECEIVED: 23 March 2024, ACCEPTED: 21 May 2024

TYPE: Original Research

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Introduction

Coelomycetes are a form-class of fungi, part of what has often been referred to as Fungi imperfecti, Deuteromycota, or anamorphic fungi.

These are conidial fungi where the conidia form in a growing cavity in the host's tissue. The fruiting structures are spherical with an opening at the apex (pycnidia) or are disc-shaped (acervuli). The formation of conidia in a fruiting body separates this group from the hyphomycetes, who have "naked" conidia.

Franz Xaver Rudolf von Höhnelt (1852–1920), an Austrian bryologist, mycologist and algologist, was known for his contributions to the taxonomy of the Coelomycetes (Wikipedia 2023)

Present paper deals with Coetomycetous fungi found in Bangladesh from 1952 till date (Ahmed 1952, 1968, Wadud 1962, Talukder 1974, Fakir 1987, Shahjahan And Mian 1973, Khan and Islam 1974, Khan and Das 1980a, Khan *et al* 1980b Siddiqui *et al.* 2007 and Bakr *et al.* 2007, Bakr and Ahmed 2009). Aforesaid scientists extensively worked on anamorphic fungi and they followed "Saccardean system of classification".

Materials and Methods

The present paper deals with substratum range of 31 species of the Form order Sphaeropsidales and 31 species of the Form order Melanconiales reported so far from different habitats of Bangladesh. They were found as pathogens or saprophytes on stem, leaf, woody debris and leaf litter environment. Asexual fruiting structures of these fungi were studied directly from the samples or isolated from the samples. The research was

conducted in Bangladesh Jute Research Institute (BJRI), Dhaka, Bangladesh Rice Research Institute (BRRRI), Joydebpur, Gazipur, Dhaka, Bangladesh Agricultural Research Institute (BARI), Joydebpur, Gazipur, Dhaka Bangladesh Agricultural University, (BAU), Mymensingh, Dhaka University, Dhaka, Rajshahi University, Rajshahi, Chittagong University, Chittagong, Jahangirnagar University (JU), Savar, Dhaka and Jagannath University (JnU), Dhaka The checklist of coelomycetous fungi recorded from Bangladesh is compiled on the basis of published literatures of the Country. The fungi were isolated from the respective hosts following 'Tissue planting method' (CAB 1968). Seed borne fungi were isolated following 'Blotter method' or 'Paper towel method' (Anonymous 2014). Soil borne fungi were isolated following 'serial dilution method'. Distribution of 62 species of fungi reported so far from various sites of Bangladesh is provided. The most frequently collected species of the genera are *Ascochyta*, *Btryodiplodia*, *Macrophomina*, *Phoma*, *Phomopsis*, *Septoria*, *Colletotricum*, *Mersonnia*, *Pestalotia* and *Pestalotiopsis*.

Classification of fungi were based on, Alexopoulos 1991, Barnett and Hunter 1972 and 1998. and Sutton 1980.

The checklist includes detail of the substrata on which they encountered as far as possible. This data will be useful in the compilation of fungal biodiversity of Bangladesh.

Results and Discussion

From 1952 till date, 31 genera of the family Sphaeropsidaceae and 31 species of the family Melanconiaaceae have been recorded from Bangladesh (Ahmed 1952, 1968, Wadud 1962,

Talukder 1974, Khan and Shamsi 1983a, 1983b, 1986, Fakir 1987, Khan *et al.* 2003 and Siddiqui *et al.* 2007 and Bakr *et al.* 2007 and Bakr and Ahmed 2009. provided in Table 1. and 2.

Class Coelomycetes: The members are found both in tropical and temperate regions. They are commonly found in cultivated and uncultivated soils, leaf litter organic debris, fresh water and saline water. They may found on other fungi and lichens. They are also pathogens of plants, insects and vertebrates. Coelomycetes is divided into two orders, Melanconiales and Sphaeropsidales. In this class conidia are produced either in acervuli or pycnidia and accordingly the members have been grouped into two orders: 1 Conidia produced in acervuli - Melanconiales 2 Conidia produced in pycnidia – Sphaeropsidales Order Melanconiales: In Melanconiales the fructifications are acervuli. It contains a single family, 'Melanconiaceae' which is characterized by the production of acervuli. Acervuli may develop subepidermally or subcuticularly. Conidia may be hyaline to cream, pink, orange or black. Acervuli develop by simple meristogenous,

compound meristogenous or sympogenous methods. More than 120 genera are included in this family and they cause plant disease known as anthracnose.

Orde: Sphaeropsidales: In this order the conidia and conidiogenous cells or conidiophores are produced in pycnidia. Mycelium may be immersed in the substrate or superficial. Conidia are produced in several ways from phialides, annellides etc. Conidia are solitary, sympodial catenate etc. Sphaeropsidales is divided into four families based on the colour, shape and texture of the pycnidia. They are Sphaeropsidaceae, Nectrioidaceae (Zythiaceae), Leptostromataceae and Excipulaceae (Discellaceae). Family : Sphaeropsidaceae

Family Sphaeropsidaceae: This is a large family consisting of both saprobes and a stroma. These are tough, leathery to brittle, globose, ostiolate and dark coloured. The spores are hyaline spherical or oval and often exude from the ostiole in damp weather in a worm like mass or citrus.

Table 1. Check list of Fungi under family Sphaeropsidaceae

Form-Order Sphaeropsidales
Form-Family Sphaeropsidaceae

Name of fungi	Host/Habitat	Status	References
1. <i>Ascochyta pisi</i>	blight <i>Pisum sativum</i>	Major disease	Bakr <i>et al.</i> 2007
2. <i>A. rabici</i> (Pers.) Labr	<i>Cicer arietinum</i> L. blight major	Major disease	Bakr <i>et al.</i> 2007
3. <i>. trifilii</i>	<i>Lathyrus sativus</i>	Major disease	Bakr <i>et al.</i> 2007
4. <i>Botryodiplodia theobromae</i>	Black band of jute	Major disease	Bakr <i>et al.</i> 2007
5. <i>Chaetomella raphanigera</i>	On <i>oaxalis latifolia</i>	Minor disease	Fatema and Shamsi 2012
6. <i>Diplodia corchori</i>	On jute	Minor disease	Bakr <i>et al.</i> 2007
7. <i>Diplodia natelensis</i>	Major, charcoal rot sweet potato	Minor disease	Bakr <i>et al.</i> 2007
8. <i>Diplodia rosea</i>	On <i>Risa</i> spp.	Minor disease	Bakr <i>et al.</i> 2007
9. <i>Diplodia rhea</i>	On Plant debris	Minor disease	Bakr <i>et al.</i> 2007
10. <i>Macroomina phaseolina</i> (Tassi) Goid	<i>Corchorus</i> spp.	Major disease	Bakr <i>et al.</i> 2007
11. <i>Macrophoma</i> sp.-	<i>Caryca papaya</i> minor leaf spot	Minor disease	Bakr <i>et al.</i> 2007
12. <i>Phoma lingam</i> (Fe.) Desm	Phoma blight of Mastard	Major disease	Bakr and Ahmed 2009

13. <i>Phoma citri</i>	seed less lemon	Moderately infected	Bakr <i>et al.</i> 2007
14. <i>Phoma lemonicola</i>	<i>C. casularis</i>	Minor disease	Bakr <i>et al.</i> 2007
15. <i>Phoma exigua</i>	On potato	Minor disease	Bakr <i>et al.</i> 2007
16. <i>Phoma glumerum</i>	grain spot rice	Minor disease	Bakr <i>et al.</i> 2007
17. <i>Phoma hymicola</i>	On cereals	Minor disease	Bakr <i>et al.</i> 2007
18. <i>Phoma oxalum</i>	On Sorghum	Minor disease	Bakr <i>et al.</i> 2007
19. <i>Phoma sapofae</i>	leaf spot Sapota	Minor disease	Bakr <i>et al.</i> 2007
20. <i>Phoma subdarifae</i>	<i>Hibiscus subdarifa</i>	Minor disease	Bakr <i>et al.</i> 2007
21. <i>Phoma sorghina</i>	exotic horticultural plant	Minor disease	Bakr <i>et al.</i> 2007
22. <i>Phomopsis anacardii</i>	Cashew nut	Minor disease	Bakr <i>et al.</i> 2007
23. <i>Phomopsis capsici</i>	On chilli	Major disease	Bakr <i>et al.</i> 2007
24. <i>Phomopsis corcoricola</i> sp. Nov.	<i>Chorcorus casularis</i> L.	Major disease	Khan and Das 1980
25. <i>P. vexans</i>	Associated with cucurbit seeds	Major disease	Bakr <i>et al.</i> 2007
26. <i>Phyllosticta cinamomi</i>	Cinnamomum sp. Leaf spot minor	Major disease	Bakr <i>et al.</i> 2007
27. <i>Phyllosticta hibici</i>	Causing leaf spot of Hibiscus spp.	Minor disease	Bakr <i>et al.</i> 2007
28. <i>Pyrenochaeta diciplienus</i>	On cereala	Minor disease	Bakr <i>et al.</i> 2007
29. <i>Pyrenochaeta oryzae</i> Shirai ex Miyaka	Cereals, rice	Minor disease	Bakr <i>et al.</i> 2007
30. <i>Pyrenichaetina</i> sp.	Seedling fruit tree	Minor disease	Bakr <i>et al.</i> 2007
31. <i>Septoria glycina</i> Hoemmi	Soybean brown spot	Minor disease	Bakr and Ahmed 2009

Order: Melanconiales In Melanconiales the fructifications are acervuli. It contains a single family, 'Melanconiaceae which is characterized by the production of acervuli. Acervuli may develop subepidermally or subcuticularly. Conidia may be hyaline to cream, pink, orange or black. Acervuli develop by simple meristogenous, compound meristogenous or

symptogenous methods. More than 120 genera are included in this family and they cause plant disease known as anthracnose. The important genera found in Bangladesh are *Colletotrichum*, *Pestalotia Pestalotiopsis* and *Marssonina*.

Table 2. Check list of Fungi under family Melanchoniaceae

Form-Order Melanchoniales

Form Family Melanchoniaceae

Name of fungi	Host/Habitat	Status	References
1. <i>Colletotrucum avanae</i>	Avanae century Leaf spot	Major disease	Bakr <i>et al.</i> 2007
2. <i>C. capsici</i> (Syd.) E.J. Butler & Bisby,	On crop residue where it leaves saprophytically, and plant, such a chilli, tomato onion and other vegetables and fruits where the fungus leaves as parasitically.	Major disease	Siddiqui <i>et al.</i> 2007
3. <i>C. corchori</i>	Anthracnose of <i>Corchorus olitorius</i>	Major disease	Bakr <i>et al.</i> 2007
4. <i>C. catechu</i>	<i>Areca catechu</i> L.	Major disease	Bakr <i>et al.</i> 2007
5. <i>C. coffeanum</i> Noack	<i>Coffea Arabica</i>	Anthracnose minor	Bakr <i>et al.</i> 2007
6. <i>C. caulicola</i>	<i>Vigna mungo</i>	Anthracnose minor	Siddiqui <i>et al.</i> 2007
7. <i>C. dematium</i> (Pers. ex Fr.) Grove	Associated with apparently healthy fruits of <i>Lablab purpurea</i> also known to occur in other families of plants	Major disease	Siddiqui <i>et al.</i> 2007
7a. <i>C. dematium</i> var. <i>truncalum</i>	On Soybean	Occurrence infrequent	Bakr <i>et al.</i> 2007
8. <i>C. falcatum</i>	Red rot of sugarcane	Major disease	Bakr <i>et al.</i> 2007
9. <i>C. gloeosporioides</i> (Penz.) Penz and Sacc.	Leaves and young twigs of mango, Wide host range <i>Citrus</i> sp. Jute and other plants.	Major disease	Bakr <i>et al.</i> 2007
10. <i>C. gossypii</i>	On Cotton plant	Major disease	Bakr <i>et al.</i> 2007
11. <i>C. graminicola</i> (Ces.) Wilt.	Crop residue, corn, and sorghum plants as saprophyte	Major disease	Siddiqui <i>et al.</i> 2007
12. <i>C. harberum</i>	On seeds of <i>Cicer arietenum</i> L	Occurrence infrequent	Siddiqui <i>et al.</i> 2007
13. <i>C. hibici</i>	<i>Hibiscus cannabinus</i>	Occurrence infrequent	Bakr, <i>et al.</i> 2007
14. <i>C. lagenarium</i> (Pers.) Ell. & Hol	On leaves and fruits of	Major disease	Bakr <i>et al.</i> 2007

	<i>Lagnaria vulgaris</i> Causing anthracnose disease		
15. <i>C. lindemuthianum</i> (Sacc. & Magn) Bri. & Cav.	On <i>Dolichos lablab</i>	Anthracnose major	A.Z.M Nowsher A. Khan and S. Islam, 1975
16. <i>C. nigrum</i>	chilli	Anthracnose minor	Talukdar 1974
17. <i>C. orbicularae</i>	Lily plant	Anthracnose minor	Shamsi and Naher 2013
18. <i>C. paradoxa</i>	On seeds	Occurrence frequent	Siddiqui <i>et al.</i> 2007
19. <i>Colletotrichum siamense</i>	On <i>Aloe vera</i> leaf spot	Anthracnose	Rumana <i>et al.</i> 2020
20. <i>C. spicifer</i>	Associated with seeds of <i>Pisum sativum</i> L.	Occurrence infrequent	Bakr <i>et al.</i> 2007
21. <i>C. truncatum</i> (Schw) Andrus and Moor	On <i>Glysin max</i> L.	Occurrence frequent	Khan <i>et al.</i> 1980
22. <i>Marssonina rosea</i> (Lib.) Died,	<i>Rosa centifolia</i> (red and pink flower	Leaf spot of rose Major disease	Ghosh and Shamsi 2014
23 <i>Monochaetia</i> sp.	<i>Eugenia jambolana</i>	leaf spot minor	Bakr <i>et al.</i> 2007
24. <i>Monochaetia karstenii</i> var. <i>gallica</i> (Stay.) Sutton	On <i>Brassica napus</i> L.	Rare	Shamsi and Hosen 2016
25 <i>Pestalotia macrotrica</i> Kleb.,	Plant such as peach (<i>Amygdolus persica</i>) Leaves of <i>Rhododendron Poyal</i>	Minor	Siddiqui <i>et al.</i> 2007
26. <i>Pestalotia palmivorum</i>	On leaves of <i>Cocos nucifera</i> L	Major	Bakr <i>et al.</i> 2007
27. <i>Pestalotia phonicis</i>	On <i>Phoenix dactylifera</i>	Major	Bakr <i>et al.</i> 2007
28. <i>Pestalotia psidi</i>	On black berry	Major	
29. <i>Pestalotia theae</i> Saw	<i>Camellia sinensis</i>	major grey blight	Bakr <i>et al.</i> 2007
30. <i>Pestalotiopsis guepini</i> (Desm.) Steyaert	On leaves of <i>Rossa</i> spp.	Major	Siddiqui <i>et al.</i> 2007
31. <i>Pestalozziella subsessilis</i> Sac. & Ellis	On <i>Oxalis crymbosa</i>	Rare	Fatema and Shamsi 2012

Siddiqui *et al.* (2007) have reported 275 fungal species under 125 genera from Bangladesh. Shamsi (2017a and 2017b) presented check list of forty species of lower fungi and 208 species of anamorphic fungi under 51 genera of the family Dematiaceae from Bangladesh. Eighty three species of anamorphic fungi under 20 genera belonging to Moniliaceae, Tuberculariaceae and Stilbelaceae found in Bangladesh from 1952 till date are also enlisted. One variety of *Fusarium moniliformae*, three varieties of *F. oxysporum* and one variety of *F. udum* were also included. Sixty two species of anamorphic fungi under 17 genera belonging to Sphaeropsidaceae and Melanconiaaceae in Bangladesh from 1952 till date are enlisted in this account.

This data will be useful in the compilation of fungal biodiversity of Bangladesh.

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