https://sordariomycetes.org/, a platform for the identification, ranking and classification of taxa within Sordariomycetes

Bundhun D1,2, Maharachchikumbura SSN3, Jeewon R4, Senanayake IC5, Jayawardena RS1, Hongsanan S5, Samarakoon MC1,6, Dayarathne MC1, Huang SK1,7, Perera RH1,7, Jing Y1,7 and Hyde KD1,8*

1Center of Excellence in Fungal Research, Mae Fah Luang University, Chiang Rai 57100, Thailand
2Department of Entomology and Plant Pathology, Faculty of Agriculture, Chiang Mai University, Chiang Mai 50200, Thailand
3School of Life Science and Technology, University of Electronic Science and Technology of China, Chengdu 611731, People’s Republic of China
4Department of Health Sciences, Faculty of Science, University of Mauritius, Reduit, Mauritius
5College of Life Science and Oceanography, Shenzhen University, 1068, Nanhai Avenue, Nanshan, Shenzhen 518055, People’s Republic of China
6Department of Biology, Faculty of Science, Chiang Mai University, Chiang Mai 50200, Thailand
7School of Science, Mae Fah Luang University, Chiang Rai 57100, Thailand
8Key Laboratory for Plant Diversity and Biogeography of East Asia, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650201, Yunnan, People’s Republic of China


Abstract

The class Sordariomycetes has, over the years, been subjected to numerous taxonomic and phylogenetic changes, resulting in rapid updates in classification. This has resulted in a vast amount of taxonomic information available as publications and in databases. With the aim of compiling all these scattered data and presenting them comprehensively in a single platform, a new website (Sordariomycetes.org), accessible at https://sordariomycetes.org/ is established. This database conveys coherent and up-to-date information on the ranking and classification of taxa within Sordariomycetes. Notes, descriptions and photographic plates of the type or reference materials, phylogenetic trees, the current number of morphologically accepted species and those with molecular data along with their ecological and / or economic importance in each genus are provided. This is a user-friendly platform, which provides easy access to relevant information.

Key words – genera – nomenclature – phylogeny – taxonomy – webpage

Introduction

Being the second largest class in the phylum Ascomycota after the Dothideomycetes (Kirk et al. 2008, Hyde et al. 2013, 2020, Maharachchikumbura et al. 2015, 2016, Jayasiri et al. 2019), the class Sordariomycetes was introduced by Eriksson & Winka (1997) and is estimated to have diverged around 341 million years ago (Hongsanan et al. 2017). The class was established based on specific morphological characters, such as perithecial ascomata, periphysate ostioles, a paraphysate

Upon the establishment of the class Sordariomycetes, three subclasses, Hypocreomycetidae, Sordariomycetidae and Xylariomycetidae were introduced by Eriksson & Winka (1997). Since then several studies on Sordariomycetes have been conducted, emphasizing not only on the morphophylogeny, but equally on fossil calibration data and divergence time estimations (Beimforde et al. 2014, Hongsanan et al. 2016, 2017, Pérez-Ortega et al. 2016, Samarakoon et al. 2016, Zhao et al. 2016, Hyde et al. 2017). As a result, the taxonomy has been revised with significant outcomes, including the addition of three subclasses, namely, Diaporthomycetidae, Lulworthiomycetidae and Meliolomycetidae (Maharachchikumbura et al. 2015). Meliolomycetidae was later reduced to the order Meliola (Hongsanan et al. 2017). The class Sordariomycetes presently comprises seven subclasses Diaporthomycetidae, Hypocreomycetidae, Lulworthiomycetidae, Savoryellomycetidae, Sordariomycetidae, Xylariomycetidae and the recently introduced subclass Pisorisporiomycetidae (Hyde et al. 2020). Within these subclasses, many new taxa have been introduced, several have also been synonymized or assigned to a new rank (Pinnow et al. 2010, Dayarathne et al. 2017, Hongsanan et al. 2017, Hyde et al. 2017, 2020, Li et al. 2017, Senanayake et al. 2017, Senwanna et al. 2017, Doilom et al. 2018, Huang et al. 2018a, b, Shang et al. 2018, Yang et al. 2018, Lin et al. 2019).

The need for a Sordariomycetes database

The taxonomy of Sordariomycetes has been subjected to major revisions and this class has been reported to have a higher speciation process (Wang et al. 2010). It is the ambition of mycologists working on this class to solve the taxonomic challenges and present an updated classification given recent changes. This has been supported by the introduction and revision of different taxa within the class (Senanayake et al. 2015, 2018, Daranagama et al. 2018, Réblová & Štěpánek 2018, Dayarathne et al. 2019, Wang et al. 2019). The primary concept of a database dedicated to Sordariomycetes is to gather all these scattered data and provide a platform through which to communicate them comprehensively. Several other websites have been established to better deal with taxonomic changes, such as Faces of fungi: https://facesoffungi.org/ (Jayasiri et al. 2015), Marine fungi: https://marinefungi.org/ (Jones et al. 2019), One Stop Shop: https://onestopshopfungi.org/ (Jayawardena et al. 2019), Genera of Fungi: https://fungalgenera.org/ (Monkai et al. 2019) and Dothideomycetes website: https://dothideomycetes.org/ (Pem et al. 2019). The present website, https://sordariomycetes.org/ categorically focuses on the class Sordariomycetes and its objectives are to 1) present an up-to-date outline of the class Sordariomycetes, 2) provide notes on the orders, families and genera of Sordariomycetes, and 3) give updated accounts of each genus keeping up with the current literature. The webpage equally imparts a list of references dealing with Sordariomycetes.

The Sordariomycetes webpage

This webpage provides data on recent taxonomic aspects of Sordariomycetes which will enable mycologists to gain an understanding of the current status of the class. Information on the placement and status of each genus is provided and the website is updated periodically. Each entry is accompanied by notes, descriptions, photographic plates, phylogenetic trees, list of currently accepted species in the genus, ecological and/or economic significance and additional relevant
information acquired through other web links, namely, Faces of fungi, Marine Fungi, One Stop Shop and Genera of Fungi.

**Construction**

The database is assigned only to fungi belonging to the class Sordariomycetes. Relevant taxa listed in the most recent classification (Hyde et al. 2020) are retrieved and reviewed. For each entry, either the Index Fungorum, FacesofFungi, MycoBank and/or herbaria numbers are provided. GenBank numbers for sequence data if available for the species studied to represent each genus are also provided. The database is continually updated as new information pertaining to the class becomes available. Curators with mycological expertise have been invited to share their knowledge, monitor the webpage and suggest improvements with the aim of ensuring an update of the classification of Sordariomycetes (Table 1). Other interested parties are encouraged to contact the moderator and offer suggestions or their service as curators.

**Table 1** List of curators for Sordariomycetes website.

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<tr>
<th>Position</th>
<th>Name</th>
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<tr>
<td>Head Curator</td>
<td>Sajeewa Maharachchikumbura</td>
<td>Sordariomycetes</td>
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<td>Sordariomycetes</td>
<td><a href="mailto:digvi221993@gmail.com">digvi221993@gmail.com</a></td>
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**Database interface and visualization**

The website, https://sordariomycetes.org/, is user-friendly, allowing easy access to the quest of interest. The webpage includes the following main headings:

- **Home**: The homepage briefly introduces the Sordariomycetes database by listing the aims for establishing the website and providing ‘highlights of information’ related to the class (Fig. 1).
- **Outline:** The ‘Outline’ gives an overall taxonomic classification of the orders, families and genera of Sordariomycetes under each subclass.

- **Archives:** This section catalogues the different orders of Sordariomycetes in a systematic way; a click on an order will first reveal the families and clicking on each family will unfold the genera accommodated therein (Fig. 5).

- **Curators:** The ‘Curators’ section provides a list and contact details of the curators of the webpage.

- **History:** This segment provides a brief account of the classification of Sordariomycetes.

- **References:** A list of the citations used in the entries, history and other information related to the class is provided under this heading.

- **News:** This segment communicates important events and noteworthy information related to Mycology.

- **Contact:** This section gives the contact details of the website and equally offers interested users the opportunity to provide their comments and suggestions.

In addition, the right-hand side of the homepage includes a search box where information on a specific genus can be searched by entering the name of the genus (Fig. 2). Beneath the search box, the recently uploaded news and genera are briefly listed under ‘Recent News’ and ‘Recent Genus’ titles. The list of genera available under this ‘Recent Genus’ section allows quick access for the user to browse, explore and switch between genera (Fig. 3). Clicking on the genus name will unfold information on the genus, type species, herbarium or reference material studied, classification, phylogeny, and ecological and/or economic significance (Fig. 4).

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**Fig. 1** – View of the Sordariomycetes web homepage.
Fig. 2 – Red arrow indicates Search box to enter the taxon name.

Fig. 3 – List of genera under ‘Recent Genus’ to enable easy access.
Fig. 4 – Sordariomycetes genus entry.

Fig. 5 – The ‘Archives’ section revealing Sordariomycetes taxa in a hierarchical order.

Acknowledgements
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