

Egypt's national fungus day

Dear Sir,

The International Union for Conservation of Nature has recognized that fungal conservation is just as important as animal and plant conservation, and has called on governments worldwide to pay much more attention to fungal conservation. Fungi are different from animals and plants. Since at least 1970, scientists have agreed that fungi belong in their own separate biological kingdom which is likely to contain far more species than the plant kingdom.

Where plants produce and animals consume, fungi are the recyclers. Fungi are just as much threatened as animals and plants by climate change, habitat destruction, invasives, pollution, over-exploitation and even, in some cases, persecution. Habitats important for threatened fungi may be different from habitats important for threatened animals and plants.

Biodiversity can only be conserved if the well-being of fungi is given as much consideration as that of animals and plants: without fungi life on earth would be unsustainable.

Fungi provide enormously important ecosystem services (e.g. soil fertility, mycorrhizas, crop protection, litter decomposition, checks and balances). The economic value of such services has been estimated as running to trillions of US dollars. Fungi are also a very important source of unusual chemicals of great value in industry and medicine. The yeast used to make bread is a fungus, and many pharmaceuticals such as antibiotics, statins and anti-cancer drugs are derived from fungi. Compared with many animals and plants, very little is known about fungi. That knowledge gap needs to be explicitly recognized and plans should be prepared to deal with that gap.

In 2014 and 2016 Abdel-Azeem the founder of Arab Society for Fungal Conservation (ASFC) proposed a good candidate for celebration of Egypt's National Fungus Day on the 20th of February. Abdel-Azeem with the help of international societies, agencies and mycologists decreed the Egypt's National Fungus Day in Bibliotheca Alexandrina in the 20th of February 2016 for the first time.

Why 20 of February?

Documentation of the world fungi may be dated back to 4500 B.C., when ancient Egyptians produced a number of hieroglyphic depictions of plants (many of which are psychedelic) on walls and within texts throughout Egypt (Abdel-Azeem 2010). Conservation of nature by ancient Egyptians was recorded on walls of temples and papyrus sheets. Egypt, known as the cradle of civilisation, has documented its fascination with fungi, when ancient Egyptians produced a number of hieroglyphic depictions of psychedelic mushrooms on temple's walls and through hieroglyphic texts throughout the country (Abdel-Azeem 2010; Abdel-Azeem and Salem 2017). The majority of temples with countless pillars, e.g. Philae temple, are like huge mushrooms with caps, tall stipes, and mushroom imprintings (Fig. 1) and paintings distributed all over Egypt (Abdel-Azeem 2010, 2014). In the Egyptian Book of the Dead, the Papyrus of Ani (Budge 1967), mushrooms are called "the food of the gods," or "celestial food" and "the flesh of the gods." Berlant (2005) theorized that both ancient Egyptian crowns, white and triple, were inspired from the primordia of *Psilocybe cubensis*. Many old dynastic Egyptian ear studs and

other structures that obviously resembled mushrooms found in this era (Aldred 1971; Fine Arts Catalogue of Boston Museum 1982). The Hearst (1550 B.C.) prescriptions 89-92 deal with the treatment of skin abrasions or contusions, recommend the application of moldy bread crumbs, salt, and rags. Here one may assume an ancient observation on the possibility of molds being helpful in preventing skin infections in connection with abrasions. This is a long way from the modern antibiotics, but it suggests the same sort of observational skill (Leake 1952). The orchil dyes have a longer recorded history and were known to the ancient Egyptians. Orchil dyes (including cudbear and litmus) derived from orcinol depsides, especially erythrin, lecanoric acid and gyrophoric acid, obtained from species of *Ochrolechia*, *Rocella*, *Umbilicaria* and *Lasallia* lichens (Coppins and Watling 1995).

In 2014, Abdel-Azeem the founder of Arab Society for Fungal Conservation proposed a good candidate for international fungus day either October 22 or February 20. Due to the displacement of the Great Temple Abu Simbel and/or the accumulated drift of the Tropic of Cancer during the past 3,280 years, it is widely believed that each of these two events has moved one day closer to the Solstice, so they would be occurring on October 22 and February 20 (60 days before and 60 days after the Solstice, respectively).

Based on the aforementioned information Abdel-Azeem suggested the Egyptian fungus day to be on February 20. This is due to the role of Egypt in documentation and conservation of fungi since ancient time and Ramses II is one of the famous pharaohs and solar event in The Great Temple at Abu Simbel is a cosmopolitan one.

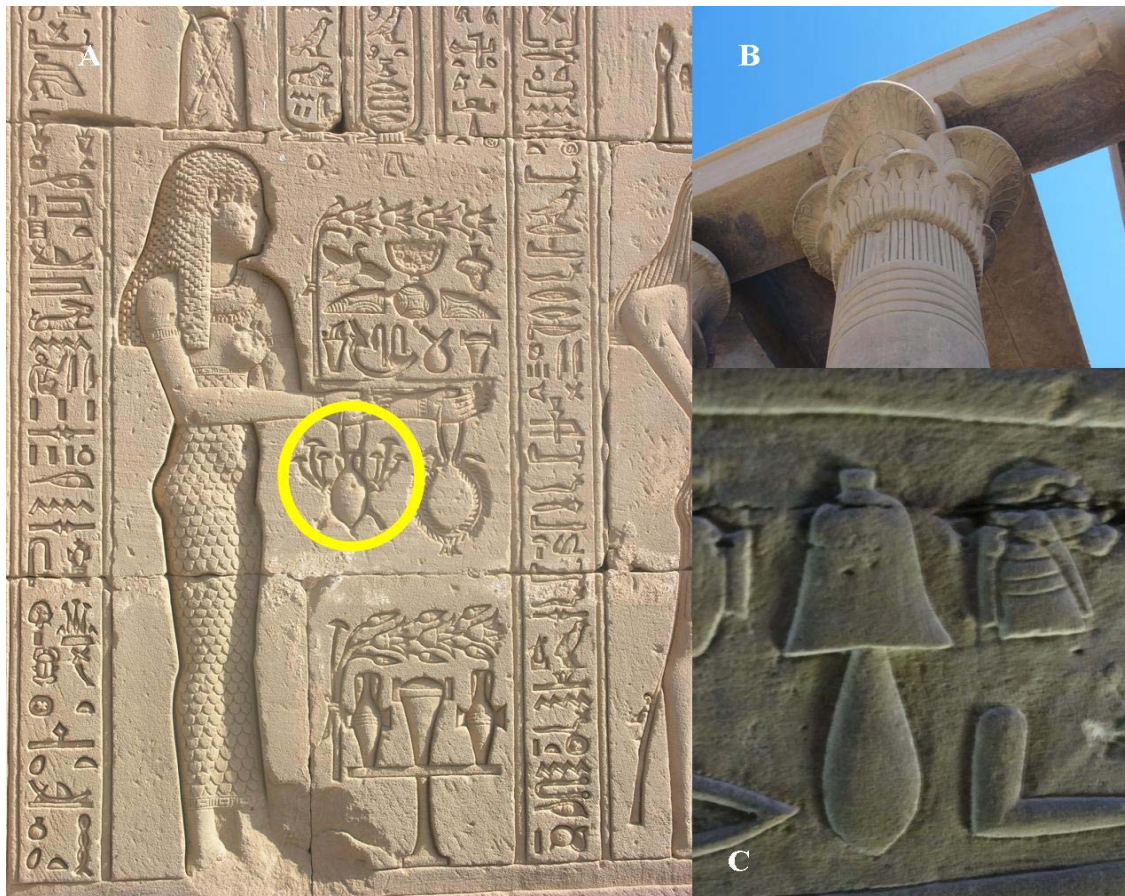


Fig. 1- A- Wall relief of a mushroom basket in Temple of Hathor, Dendera, B- A pillar with a fan or oyster-shaped top in Temple of Philae in Aswan, Egypt, C- Mushroom relief in Edfu Temple © Abdel-Azeem 2016.

Why Bibliotheca Alexandrina?

The new Library of Alexandria, the new Bibliotheca Alexandrina (BA), is dedicated to recapturing the spirit of openness and scholarship of the original Bibliotheca Alexandrina. It is much more than a library. The Bibliotheca Alexandrina aims to be: A center of excellence in the production and dissemination of knowledge and to be a place of dialogue, learning and understanding between cultures and peoples. The unique role of the Library of Alexandria, as that of a great Egyptian Library with international dimensions, will focus on four main aspects that seek to recapture the spirit of the original ancient Library of Alexandria. It aspires to be:

- The world's window on Egypt.
- Egypt's window on the world.
- A leading institution of the digital age.
- A center for learning, tolerance, dialogue and understanding.

Who Supported Egypt's National Fungus Day?

Mr. Braulio Ferreira De Souza Dias, former executive secretary of the Convention on Biological Diversity (CBD) (<https://www.cbd.int/doc/speech/2016/sp-2016-02-20-egypt-fungi-en.pdf>).

Dr. David W. Minter, president of the International Society for Fungal Conservation (ISFC) was the first society anywhere in the world to be entirely devoted to protecting fungi. Established in August 2010, it now has more than 300 members in over 60 different countries (<http://www.fungal-conservation.org>).

Dr. Simon Stuart, the former chair of the International Union for Conservation of Nature (IUCN) Species Survival Commission. IUCN is a membership Union uniquely composed of both government and civil society organisations. Created in 1948, IUCN has evolved into the world's largest and most diverse environmental network. It harnesses the experience, resources and reach of its 1,300 Member organisations and the input of some 16,000 experts. IUCN is the global authority on the status of the natural world and the measures needed to safeguard it (<https://www.iucn.org/about>).

Professor **Robert A. Blanchette** and his co-workers at Department of Plant Pathology, the University of Minnesota (U of M) which founded in 1851 as the state's land-grant institution, the University of Minnesota is one of the state's greatest assets and one of the most comprehensive public universities in the United States, ranking among the most prestigious (<http://forestpathology.cfans.umn.edu/Blanchette.htm>).

The Mohamed bin Zayed Species Conservation Fund (MBZ) as a significant philanthropic endowment established to provide targeted grants to individual species conservation initiatives, recognize leaders in the field of species conservation and elevate the importance of species in the broader conservation debate. To date the fund has awarded over 1500 grants to a diverse range of species across the world (<https://www.speciesconservation.org>).

Egyptian mycologists from different universities (Suez Canal, Alexandria, Ain Shams, Assuit, Damietta and Al-Azhar), research centers (Desert, the Regional Center for Mycology and Biotechnology at Al-Azhar University, the National Institute of Oceanography and Fisheries).

Egyptian Mycologists' Network

By the end of declaration of the Egypt's National Fungus day in 2016 (Fig. 2), Arab Society for Fungal Conservation (ASFC) founded the Egyptian Mycologists' Network (EMN). EMN (<http://fungiofegypt.com/Network/>) is a structured network of laboratories with a steering committee to guide and promote best practice in mycology. This is achieved through regular meetings for all members and co-ordination of the following:

- mycology service delivery

- mycological surveillance
- workshops and laboratory training
- conservation development



Fig. 2- Declaration of the Egypt' National Fungus Day in Bibliotheca Alexandrina © Abdel-Azeem 2017.

In conclusion, Egyptian mycologists carry the responsibility to conserve their natural heritage and to discuss the role of fungi with public and politicians. This is a very heavy burden, as even the majority of scientists deny the true importance of fungi and their essential role in the conservation, recycling and protection of biomes. A hard mission for the Egyptian mycologist is to get the attention of national politicians and decision makers and is even more difficult as national legislation is strongly focused on protecting of plants and animal and ignoring 'orphans of Rio'.

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