

8 September 2020

## MEDIA RELEASE

### Returning to the office after months away? UP scientists discuss the fungi you might find

PRETORIA – With South Africa’s move to level two lockdown amid the COVID-19 pandemic, and many returning to the office after months away, University of Pretoria (UP) scientists have been considering the fungi that people might encounter in the most unexpected places.

Professor Cobus Visagie and Dr Neriman Yilmaz, both mycologists at UP’s Forestry and Agricultural Biotechnology Institute (FABI), have launched the FABI Fun Project to take a closer look at the fungal diversity found in and around the institute as many begin to return to laboratories and offices. The public, both locally and abroad, are invited to participate in this initiative.

“The public is welcome to send pictures or mouldy items,” says Prof Visagie. “We will preserve the strains in our fungal collection and then identify them to species level. If we find new species, we will describe them and name them after the person who sent the material to us.”

He points to a leatherwear and accessory store in Malaysia that reopened its doors after two months of lockdown, only to find fungi growing on all their products. “This is an extreme case, but if we look carefully in our own offices, we might find fungi in the most unexpected places,” Prof Visagie says. “In these unusual and often harsh environments, the most likely fungi to be discovered are those that are xerophilic or osmotolerant such as species of *Aspergillus*, *Cladosporium* or *Penicillium*.” These species are generally not dangerous to humans but can cause allergies in some individuals.

Prof Visagie explains that fungi will grow wherever there is a carbon source. He found fungi in a cooler box, on pencils, wherever the moisture levels are optimal for growth. “These probably had a little bit of moisture that allowed for growth to occur,” he says. “Usually, when we occupy offices, there is enough airflow with open doors and air conditioners creating condition that generally prevents fungal growth. Other common places will be in or on uncleaned coffee or teacups.”

Fungi, which are similar to bacteria, have evolved to be able to live almost anywhere. Most are not dangerous. “If we consider the indoor environment, we breathe in commonly occurring fungal spores with every breath,” Prof Visagie explains. “Certain species (such as *Aspergillus fumigatus*) might become problematic, especially in immunocompromised individuals, when spores are inhaled in large quantities. Similarly, *Fusarium* contains serious plant pathogenic species, but not all strains of a species are ‘activated’ to cause diseases.”

Most fungi occur as saprophytes, which break down dead organic material, thus performing a crucial role in the carbon cycle. However, many grow on or in plant material where they can have a mutualistic or parasitic relationship with the plant.

According to Prof Visagie, fungi play many roles and affect every human on a daily basis. “Fungi are incredibly diverse. They can cause devastating diseases in humans, plants and animals, while particular species can produce mycotoxins that affect our health. The cost of controlling mycotoxins

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amounts to billions of dollars. This does not take into account the health costs in countries where citizens are exposed to these toxins, which results in stunting in children.”

Correct identification of the species level is critical in diagnostic clinics to determine how to treat someone struggling with a fungal infection, for instance.

However, humans have also exploited fungi to great benefit. “*Saccharomyces cerevisiae* is a yeast used for the production of bread and alcoholic drinks; *Penicillium rubens* produces the antibiotic penicillin; Quorn is a meat substitute made from the soil mould *Fusarium venenatum*; and *Aspergillus niger* is used in the production of citric acid, which is widely used in the food and drink industry.” There is also *Aspergillus oryzae* more commonly known as ‘koj-mould’, which is used to produce many Asian food items such as soy sauce. *Penicillium* species are commonly used for the production of speciality cheeses (blue cheese and Camembert) or cured sausages (salami), while *Trichoderma* species are used as biological control agents by farmers.

“The ways in which fungi affect us are endless, and without exploring fungal diversity, what fungi do, the impact they have on us or how we can exploit them, the world would be a very different place to what we know.”

If you find fungi in strange places and would like to participate in the FABI Fun Project, please email [Cobus.Visagie@up.ac.za](mailto:Cobus.Visagie@up.ac.za) and [Neriman.Yilmaz@up.ac.za](mailto:Neriman.Yilmaz@up.ac.za).

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## ABOUT THE UNIVERSITY OF PRETORIA

The University of Pretoria (UP) is one of the largest contact and residential universities in South Africa, with its administration offices located on the Hatfield Campus, Pretoria. This 112-year-old institution is also the largest producer of research in South Africa.

Spread over seven campuses, it has nine faculties and a business school, the Gordon Institute of Business Science (GIBS). It is the only university in the country that has a Faculty of Veterinary Science which is ranked top in Africa, and overall has 120 academic departments, as well as 92 centres and institutes, accommodating more than 55 000 students and offering about 1 100 study programmes.

UP is one of the top five universities in South Africa, according to the 2019-2020 rankings by the Center for World University Rankings. It is also ranked among the top 100 universities worldwide in three fields of study (veterinary science, theology and law), and among the top 1% in eight fields of study (agricultural sciences, clinical medicine, engineering, environment/ecology, immunology, microbiology, plant and animal sciences and social sciences).

In May 2020, the annual UK Financial Times Executive Education Rankings once again ranked GIBS as the top South African and African business school. The University also has an extensive community engagement programme with approximately 33 000 students involved in community upliftment. Furthermore, UP is building considerable capacities and strengths for the Fourth Industrial Revolution by preparing students for the world beyond university and offering work-readiness and entrepreneurship training to its students.

As one of South Africa's research-intensive universities, UP launched the *Future Africa Campus* in March 2019 as a hub for inter- and transdisciplinary research networks within UP and the global research community to maximise 4IR innovation and address the challenges and stresses our continent and world is facing. In addition UP also launched the Javett Art Centre in September 2019 as a driver of transdisciplinary research development between the Humanities and other faculties. In 2020 UP will launch Engineering 4.0. as a hub not only for Smart Cities and Transport, but also to link the vast resources in technology and data sciences to other faculties via Future Africa. These initiatives are stimulating new thinking at the frontier of 'science for transformation'.

For more information, go to [www.up.ac.za](http://www.up.ac.za)