# Rising temperatures threaten expansion of deadly Aspergillus fungi across continents



Rising global temperatures are projected to facilitate the geographical expansion of the Aspergillus family of fungi, which pose significant health risks worldwide, according to recent research. This comes amidst increasing concerns about the impact of climate change on the spread of various pathogens, including those carried by mosquitoes. The findings indicate that areas in Europe, Asia, and the Americas that previously posed minimal risks may soon see a surge in infections.

Aspergillus fungi, particularly the species Aspergillus fumigatus and Aspergillus flavus, are already implicated in millions of invasive fungal infections each year, contributing to approximately 3.8 million deaths annually. Norman van Rhijn, a research fellow at the Wellcome Trust and a co-author of this recent study, noted the inextricable link between climate change and pathogen spread. “We’re talking about hundreds of thousands of lives, and continental shifts in species distributions,” van Rhijn commented, highlighting the urgency of addressing this issue before it becomes critical.

The study predicts that if fossil fuel usage continues unabated, A. fumigatus could extend its range by an additional 77% by the year 2100, endangering an estimated 9 million people in Europe alone. The spores of this fungus can thrive in warm, damp conditions, and are particularly hazardous for individuals with compromised immune systems, such as those suffering from asthma, cystic fibrosis, or undergoing chemotherapy.

Professor Elaine Bignell, co-director of the MRC Centre for Medical Mycology at Exeter University, pointedly remarked on the adaptability of A. fumigatus, stating that it can grow “astonishingly quickly” at high temperatures, thereby enhancing its survival capabilities in human bodies.

The environmental implications of these findings extend beyond human health; A. flavus, which is known to produce aflatoxins linked to serious health issues, is also projected to expand into regions of North China, Russia, and Scandinavia, whilst displacing its current habitats in Africa and Brazil. Darius Armstrong-James, a professor at Imperial College London, raised concerns about the potential effects this might have on ecosystems and food security, signalling an urgent need for further exploration into the ecological shifts that might ensue.

Despite the looming threat, the development of effective antifungal treatments has been hindered by economic factors, as investment in such drugs is often deemed unprofitable. This financial restraint coupled with rising resistance to existing antifungals exacerbates the health crisis associated with fungal infections.

In a related perspective, Brittany Bustamante, a scientist from the University of California, Berkeley, has found that climate change impacts can lead to increased incidents of fungal infections following extreme weather events. Her research, which focuses on analysing medical records from around 100 million patients, indicates that factors like drought followed by heavy rainfall can facilitate the release and spread of spores into the environment. Since 2020, noticeable increases in aspergillosis cases have been observed primarily among Latino populations and individuals in rural areas, raising questions about the intersection of public health, socio-economic status, and environmental factors.

The ongoing research highlights a crucial need for awareness regarding fungal pathogens as climates continue to shift. The intricate interplay between environmental factors and health outcomes underscores the imperative for further studies into the impacts of climate change on infectious diseases.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

* <https://www.ft.com/content/506f5a03-8520-40e1-aee3-a6e6427f68c0> - This article discusses how rising global temperatures are projected to facilitate the geographical expansion of the Aspergillus family of fungi, posing significant health risks worldwide.
* <https://www.cdc.gov/fungal/about/climate-change-and-fungal-diseases.html> - The CDC outlines how climate change, including increased temperatures and precipitation, may expand the areas where fungi like Aspergillus can survive, leading to higher risks of infections.
* <https://www.mdpi.com/2304-8158/12/14/2704> - This study examines how climate change is a global threat resulting in increasing mycotoxin occurrence, particularly focusing on Aspergillus mycotoxins.
* <https://www.mdpi.com/2072-6651/10/1/5> - The research investigates how carbon dioxide mediates the response to temperature and water activity levels in Aspergillus flavus during infection of maize kernels, highlighting the impact of climate change on fungal behavior.
* <https://www.mdpi.com/2304-8158/12/14/2704> - This article discusses how climate change is a global threat resulting in increasing mycotoxin occurrence, particularly focusing on Aspergillus mycotoxins.
* <https://www.mdpi.com/2072-6651/10/1/5> - The study examines how carbon dioxide mediates the response to temperature and water activity levels in Aspergillus flavus during infection of maize kernels, emphasizing the effects of climate change on fungal behavior.
* <https://www.ft.com/content/506f5a03-8520-40e1-aee3-a6e6427f68c0> - Please view link - unable to able to access data