The asteroid that wiped out the dinosaurs may have triggered a global fungal bloom

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Credit: Image generated by the editorial team using AI for illustrative purposes.

The asteroid that smacked into our planet about 66 million years ago at the Cretaceous-Paleogene (K/Pg) boundary may have been bad news for dinosaurs, but it was good news for fungi. According to new research

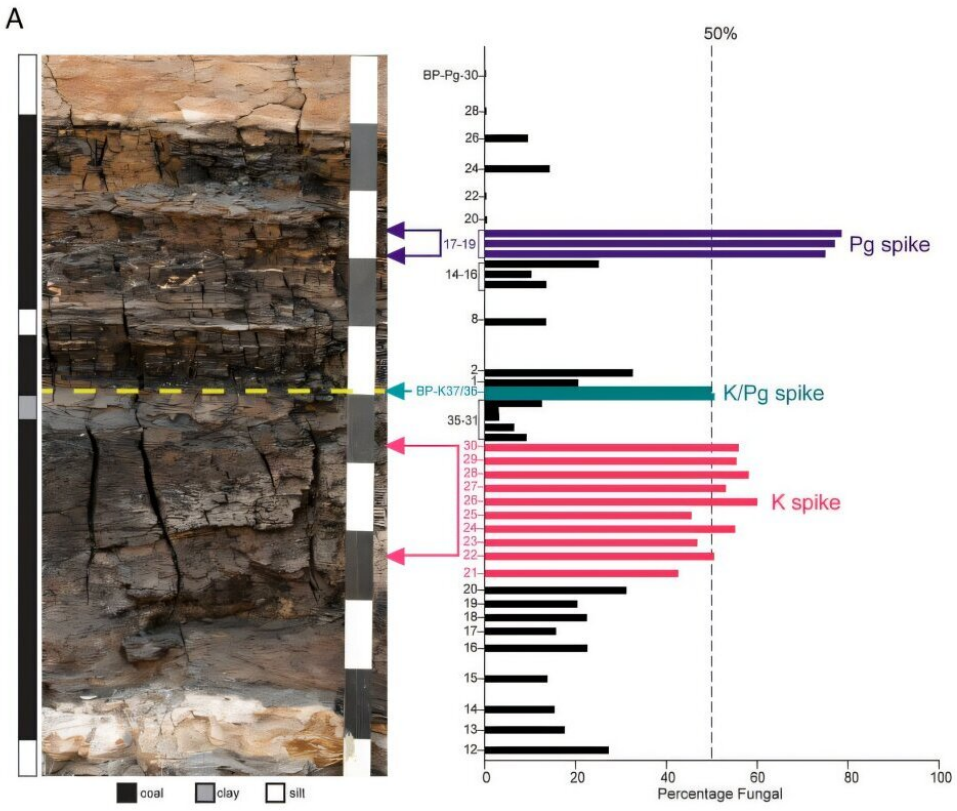
published in the *Proceedings of the National Academy of Sciences*, after this mass extinction event, one of the most significant in Earth's history, fungi may have proliferated across the globe.

Fungal blooms had previously been documented globally after the Permian-Triassic extinction (252 million years ago), but only at one site in New Zealand following the dinosaur extinction. Researchers Rosanna P. Baker and Arturo Casadevall of Johns Hopkins Bloomberg School of Public Health, Baltimore, U.S., wanted to investigate whether this later fungal bloom was also a worldwide phenomenon.

Hunting for ancient spores

The duo analyzed sediment samples taken from well-preserved geological sites in Colorado and North Dakota. They examined material from the late Cretaceous, the Cretaceous-Paleogene boundary, and the early Paleocene. To improve their chances of finding ancient fungal spores, Baker and Casadevall used a gentler, non-acid preparation technique rather than the standard processing methods that can remove delicate or smaller spores.

The researchers discovered an explosion of fungi at the three sites they examined. Specifically, they report a fungal bloom already in progress roughly 30,000 to 10,000 years before the asteroid impact. They suggest this may be linked to a period of climatic cooling associated with the massive volcanic eruptions from the Deccan Traps in what is now India.



Fungal spikes in the Bowring Pit section. (A) Photograph on left showing lithostratigraphy with K/Pg boundary indicated by a dashed yellow line aligned with a bar graph (Right) of the percentage fungal forms among the total microfossil count in each sample. (B) Representative images of the most abundant fungal morphotypes in the three fungal spikes. Credit: *Proceedings of the National Academy of Sciences* (2026). DOI: 10.1073/pnas.2536899123

"The temporal association between the Late Cretaceous fungal proliferative episode with Deccan volcanism suggests ecological upheaval occurring tens of thousands of years before the bolide impact, which may have contributed to the Cretaceous-Paleogene extinction event," wrote the study authors in their paper.

Then, after the asteroid hit, there was a separate, even more significant

spike in fungal activity. "Our results confirm a fungal spike at the K/Pg boundary which supports the hypothesis that this mass extinction, like the one marking the end of the Permian, was followed by a worldwide interval of increased fungal activity."

A feast for fungi

The scientists suggest that the primary driver for both fungal blooms was the massive accumulation of dead organic matter. For the first bloom, the rapid climate change caused by vast amounts of sulfur dioxide and ash ejected into the atmosphere likely disrupted terrestrial plant ecosystems. And being nature's recyclers, fungi would have thrived on the sudden abundance of dead organic matter.

This same process would have happened on a larger scale after the asteroid impact, which plunged the planet into a global impact winter, leaving even more decaying material in its wake.

More information: Rosanna P. Baker et al, Fungal proliferation before and after the Cretaceous–Paleogene mass extinction event in North America, *Proceedings of the National Academy of Sciences* (2026). DOI: 10.1073/pnas.2536899123