Scientists Find One Billion Year Old Fungi, Earth's Oldest

Trevor Nace Senior Contributor
Science
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unusual orange fungi growing in the Tarkine Rainforest on the west coast of Tasmania, Australia GETTY

Scientists recently found one billion-year-old fungi in Canada, changing the way we view evolution and the timing of plants and animals here on Earth.

The fossilized specimen was collected in Canada's Arctic by an international team an later identified to be the oldest fungi ever found, sitting somewhere between 900 million and 1 billion years old. The research, published recently in Nature, changes how we view eukaryotes colonizing the land.

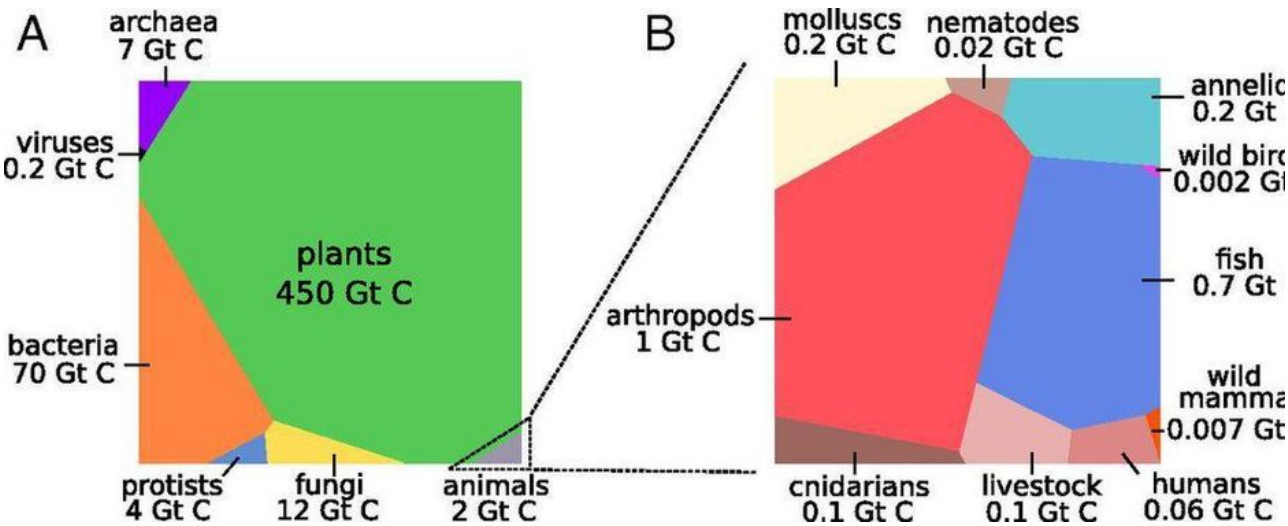
The fossilized fungi were analyzed and researchers found the presence of chitin, a unique substance that is found on the cell walls of fungi. The specimen was then age dated using precise measurements of radioactive isotope ratios within the sample.

The previous oldest fossil fungi on record dated back to the middle Paleozoic, about 460 million years old. Finding fungi that lived twice that long ago, 1 billion years ago is important for the inferences we can make on the rest of the living organisms durin that time. Fungi, such as modern mushrooms, mold, and yeast is a member of the group of eukaryotic organisms.

Eukaryotic organisms are those with cells that have a nucleus within a cell membran A couple other key members of eukaryotes are plants and animals. Hence, the importance of this find. If fungi existed one billion years ago, based on the similaritie in the domain Eukaryota, it is likely that other plants and animals existed during tha time as well.

This finding significantly changes our view on when plants and animals could have existed on Earth. Previous estimates are that the first land plants existed around 470 million years ago and animals around 580 to 500 million years ago.

With this recent finding, distant yet related plants and animals could have existed up to 1 billion years ago. This changes scientists vision of early life on Earth and makes an important point that modern life (plants, animals, fungi) have been around much longer than previously thought.



Breakdown of biomass of different domains on earth. PNAS

If you break down the relative abundance of fungi compared to other kingdoms on Earth it is clear they are a major contributor to life on Earth. It is estimated that toda the Kingdom Fungi has 2.2 to 3.8 million species, with only about 120,000 documented and described.

Of the estimated 7.7 billion people on Earth, we make up only 1/10,000 of Earth's biomass. By far the largest contributor to biomass is plants, making up 80 percent, with bacteria coming in second at 13 percent and fungi in third at 2 percent.

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Trevor Nace

I am a geologist passionate about sharing Earth's intricacies with you. I received my PhD from Duke University where I studied the geology and climate of the Amazon. I ... **Read More**