

Self-fertility in fungi — the secrets of 'DIY reproduction'

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Research from The University of Nottingham sheds new light on a fascinating phenomenon of the natural world — the ability of some species to reproduce sexually without a partner.

Scientists have been trying to determine how individuals of a key fungus, *Aspergillus nidulans*, are able to have sex without the need for a partner.

In new findings published in the journal *Current Biology* on August 2, they reveal that the fungus has evolved to incorporate the two different sexes into the same individual.

This means that when sex occurs the fungus activates its internal sexual machinery and in essence 'mates with itself' to produce new offspring, rather than bypassing the sexual act.

This is a significant discovery as it helps scientists to understand how fungi reproduce in general. Fungi can cause health problems in humans and other serious animal and plant diseases, but are also useful as sources of pharmaceuticals and food products.

The long-term aim of the research is to be able to manipulate fungal sex to our own advantage, to prevent disease and help produce better strains for use in the food and biotech industries.

Dr Paul Dyer, of the School of Biology, was lead author of the study. He said: "When we think of sex in the animal world we normally associate it with males and females attracting each other and then coming together for the sexual act."

"But things are different in the fungal and plant kingdoms, where a lot of species are 'self fertile'. This means that they are able to have sex to produce spores and seeds without the need for a compatible partner. Our findings show that *Aspergillus nidulans* provides a true example of 'DIY sex'."

Self-fertilisation is thought to have developed in some plant and fungal species as a response to a scarcity of compatible mating partners. It also allows species to maintain a combination of genes — called a genotype — that is well adapted to surviving in a certain environment.

Aspergillus nidulans is often used as a model organism for scientists studying a wide range of subjects including basic genetic problems that are also applicable to humans, including recombination, DNA repair and cell metabolism.

Source: University of Nottingham

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