



In antibiotics like penicillin and cephalosporin, fungi are used to kill bacteria, which prevents diseases that could harm humans.

Mushrooms are one of the most common fungi that humans know as food. There are many different types of edible fungi, but the most expensive probably are truffles. Truffles are delicacies that are very rare, humans can not detect them that easily, however, dogs and pigs can smell them from a distance.

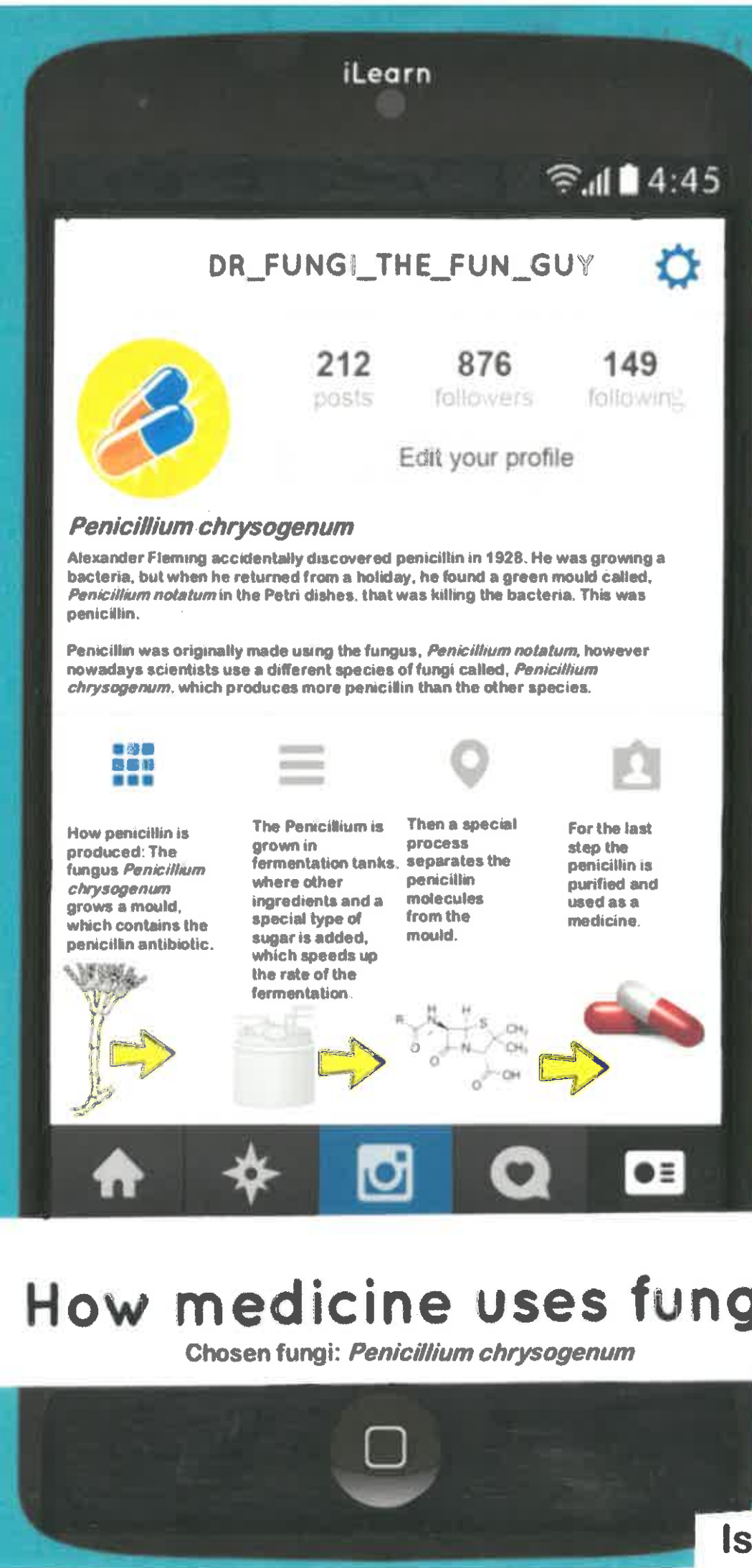
Soy sauce is made by cooking soybeans, and then adding fungal cultures to start the fermentation process. After the fermentation process is complete, the mixture is pressed to separate the soy sauce liquid.

Fungi can be used to help in a variety of different jobs, including farming. Some fungi attack insects, so can protect crops and be used as natural pesticides.

Fungi are one of the main decomposers, however, it is only at a microscopic level. The fungi release enzymes, which break down matter, like dead leaves, so then they can be absorbed by their cells to give them energy.

Fungal enzymes, including fungal proteases, are used to breakdown food for things such as, pre-digesting baby food. For example, proteases are used to breakdown/pre-digest the proteins in the food.

## Commercial uses of Fungi



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*Penicillium chrysogenum*

Alexander Fleming accidentally discovered penicillin in 1928. He was growing a bacteria, but when he returned from a holiday, he found a green mould called, *Penicillium notatum* in the Petri dishes, that was killing the bacteria. This was penicillin.

Penicillin was originally made using the fungus, *Penicillium notatum*, however nowadays scientists use a different species of fungi called, *Penicillium chrysogenum*, which produces more penicillin than the other species.

How penicillin is produced: The fungus *Penicillium chrysogenum* grows a mould, which contains the penicillin antibiotic.

The *Penicillium* is grown in fermentation tanks, where other ingredients and a special type of sugar is added, which speeds up the rate of the fermentation.

Then a special process separates the penicillin molecules from the mould.

For the last step the penicillin is purified and used as a medicine.

## How medicine uses fungi

Chosen fungi: *Penicillium chrysogenum*