

MOLD! A CLOSED LOOK

PHOTOS AND
ARTICLE BY
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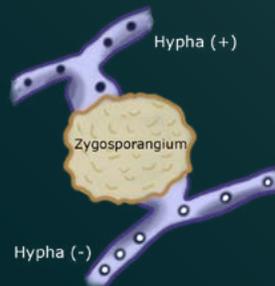


MOLDY FACTS!

Have you ever wondered why your food is spoiling? Have you awoken from a good night's sleep only to find that the orange you were saving for today's lunch has turned fuzzy and green? That's mold's fault! Molds belong to the fungi kingdom and most are part of the zygomycota phylum, which means they reproduce spontaneously by contact with a differently sexed hypha (fuzzy strand).

Fungi evolved from protists and feed by absorbing nutrients from other organisms--dead or alive. The kind of fungi that most people are concerned with are the ones that affect our foods. They can either make our foods taste good (in the case of cheese) or can be responsible for the bad taste that come with spoiled food.

Molds are composed of filaments called mycelia. They are made of chitin, a nitrogenous polysaccharide and together form a meshwork of fibers that make up the vegetative body of the organism. Molds reproduce by coming into contact



with other mycelia that contain different copies of the genes they carry. The point at which they fuse is called a zygosporangium.

Molds serve a big purpose in the ecosystem because they recycle key nutrients such as Carbon, Nitrogen and Phosphorus back into the environment. But they are also responsible for billions of dollars of losses in the agricultural industry each year due to food spoilage. They are especially detrimental to wheat, corn barley and other grains due to their high carbohydrate content.

The power of mold can also be harnessed to impart a rich, complex flavor to many cheeses such as Roquefort and Gorgonzola. These cheeses are produced by combining mold spores into the milk during production of by aging the cheese in places rich in naturally occurring spores.



A VEGETAL AFFAIR



This is an example of two common food molds that have taken up residence in a piece of old roasted potato. The green mold and the white mold sit next to each other and the cottony meshwork of mycelia are clearly visible.

This food is clearly spoiled. The CDC recommends that after cooking appropriately, that food be refrigerated within two hours. Foods like this potato pictured should be thrown away after 3 to 4 days.

This picture was taken on a Canon

5D Mark II using a 65mm macro lens and stacked using Zerene Stacker, Pmax function. Click to the right to

see a pseudostereo representation of the image to get a better idea of its depth.



The hairs that make up the mold are made of chitin, a nitrogenous polysaccharide also found in insect's exoskeletons. The fibers are called mycelia and they make up the body of the mold organism

The most common bread mold come from the *Rhizopus* family of the zygomycota genus. Those pesky spots you find on the surface of your loaf are responsible for your bread going bad. This piece of whole grain baguette had been sitting in the cabinet for the weekend in a sealed bag, hence the appearance of the mold spots.

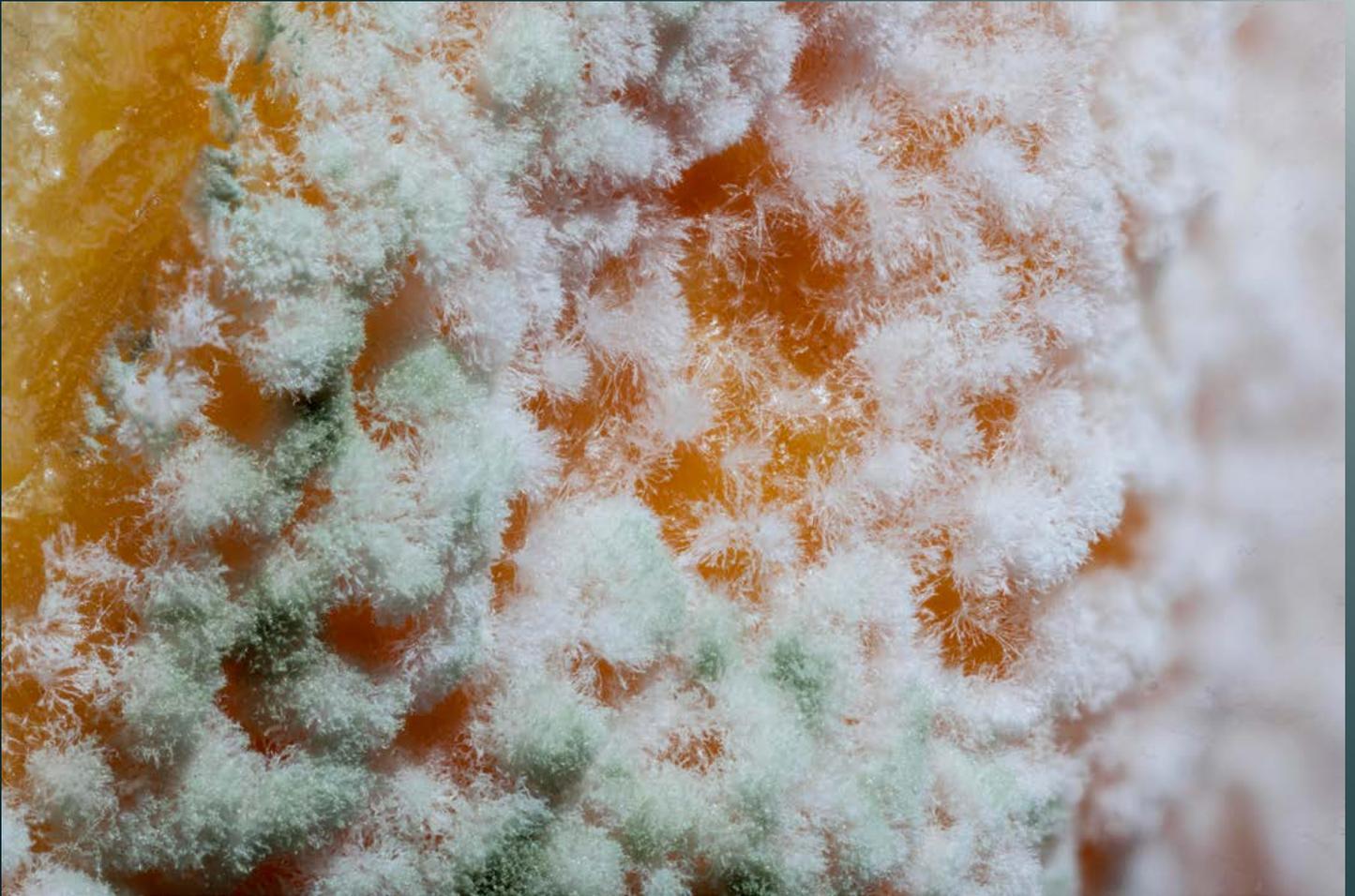
The CDC recommends that bread be discarded if any mold is found on it because porous foods can be contaminated below the surface.

This photo was taken Using a Canon 5D Mark II and a Canon 65 Macro lens, stacked using Zerene stacker.



GIVE US THIS DAY,
OUR DAILY BREAD





This Photo was Taken on A Canon 5D Mark II and a Canon 65 macro lens, stacked using Zerene stacker.

Oranges make a good source of food for molds because they are rich in not only cellulose, but also sugar. Molds have enzymes that can break down cellulose and sometimes lignin, the woody protein that makes up the xylem of trees.



ORANGE YOU GLAD
YOU DIDN'T EAT THAT?

HAVE SOME CHEESE AND GET CULTURED!



This photo is of Gorgonzola cheese transilluminated from below and with raked light skimming across the edges. You can see the holes in the cheese from the needling (aerating) process

The milk particles absorb all the light on the blue end of the spectrum, leaving mostly red light to transilluminate. This is also why the sunset is red, because atmospheric particles are absorbing higher-energy wavelengths, leaving only lower wavelengths in place.

Some cheeses are made by incorporating mold spored into the mix, or by aging the cheese in places rich in naturally occurring spores. This Gorgonzola was pierced before the aging process to allow air to access the mold spores, allowing the mold to grow, imparting a richer, more distinct flavor. Since mold spores need oxygen to live, they primarily exist near the holes in the cheese, but do branch out in veins throughout the cheese.



HOLY TUNNEL VISION, BATMAN!



References:

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