Sun-exposed oyster mushrooms help patients fight tuberculosis

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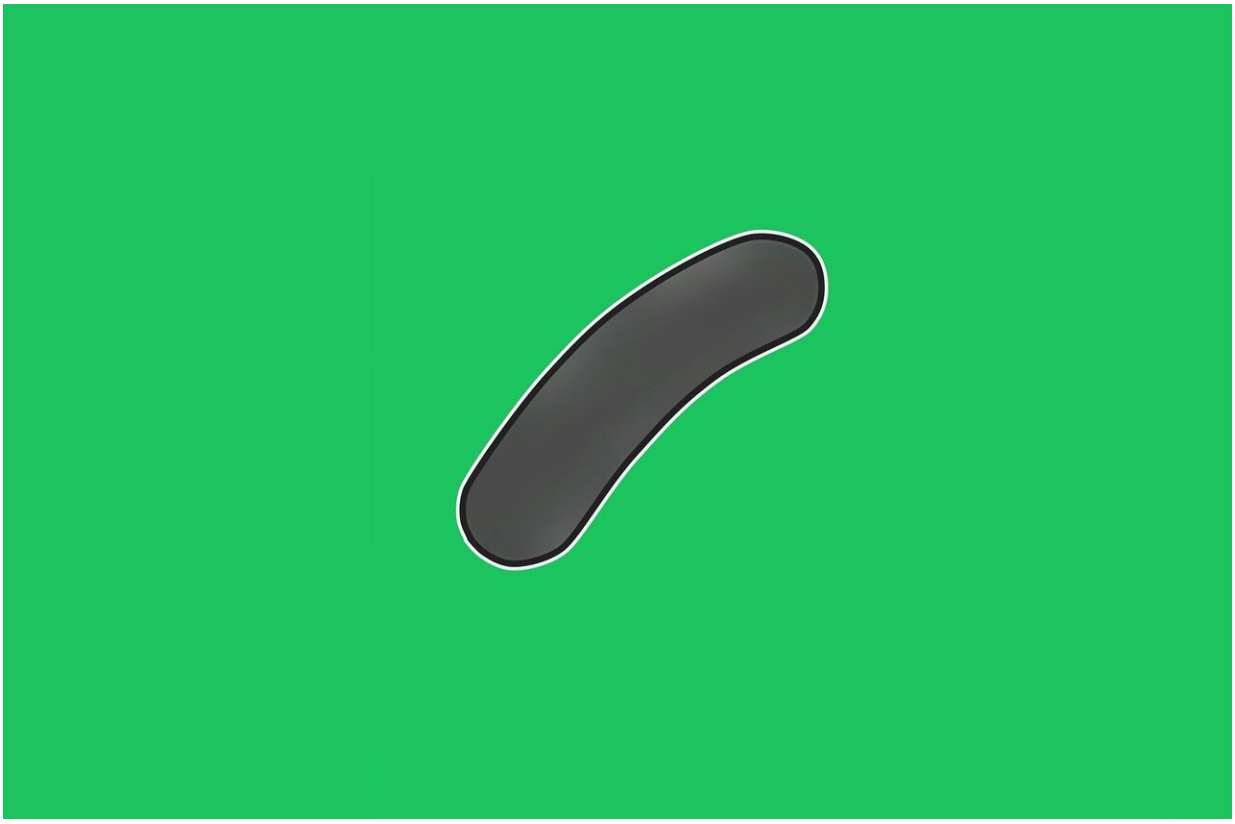

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Tuberculosis (TB) remains one of the deadliest infectious diseases in low income countries, with around 1.6 million people dying of the disease each year. In a new study, researchers show that sun-exposed oyster

mushrooms offer a readily available source of vitamin D that can help TB patients respond better to anti-TB drugs by improving immune response.

"TB is becoming more difficult to fight due to the emergence of drug-resistant strains, creating an urgent need for new treatments that can support first-line drugs," said TibebeSelassie Seyoum Keflie, a doctoral fellow at University of Hohenheim, Germany. "This source of vitamin D is ideal for low income countries because mushrooms can easily be distributed and administered in a safe, low-cost, easy-to-replicate manner."

Keflie, who performed the research with Hans Konrad Biesalski, will present the research at Nutrition 2019, the American Society for Nutrition annual meeting, held June 8-11, 2019 in Baltimore.

Studies have shown that vitamin D induces the body to form an antimicrobial compound that attacks the bacterial cause of TB. Although sun exposure can boost a person's vitamin D levels, it must be obtained through diet when sun exposure is scarce.

The researchers used oyster mushrooms because they offer a cheap, safe and readily available source of vitamin D that is easily absorbed by the body. Although fresh oyster mushrooms contain almost no vitamin D, the fungus produces it the after exposure to sunlight much like the human body.

"This is the first time that vitamin D derived from oyster mushrooms exposed to sun has been shown to be a potential adjunctive therapy for TB," said Keflie. "With educational outreach, it might be possible to teach people with TB to irradiate their own mushroom for a brief period before cooking."

For the study, the researchers gave a group of TB patients sandwich bread containing 146 micrograms of vitamin D from sun-exposed oyster mushrooms every morning during the first four months in which they received an anti-TB drug.

At the end of the four months, 95 percent of patients receiving the fortified bread were classified with the lowest TB severity score on a scale of 1 to 5. The treatment group had significantly higher vitamin D levels compared to patients not receiving the bread, with more than a third of them no longer showing a vitamin D deficiency. The researchers also observed that patients who consumed the fortified bread had significant improvements in immunological responses over the four months.

The researchers plan to carry out additional investigations on the interactions of vitamin D and immunological responses in larger and more diverse groups of TB patients. They are also developing different mushroom drying methods to determine how to achieve the highest levels of vitamin D.

More information: TibebeSelassie Seyoum Keflie will present this research on Sunday, June 9, from 3:45—4 p.m. in the Baltimore Convention Center, Room 319/320 (abstract).

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