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Bacteria could protect old paintings from pigment-eating microbes



Incoronazione della Vergine, an oil painting on canvas by Carlo Bononi
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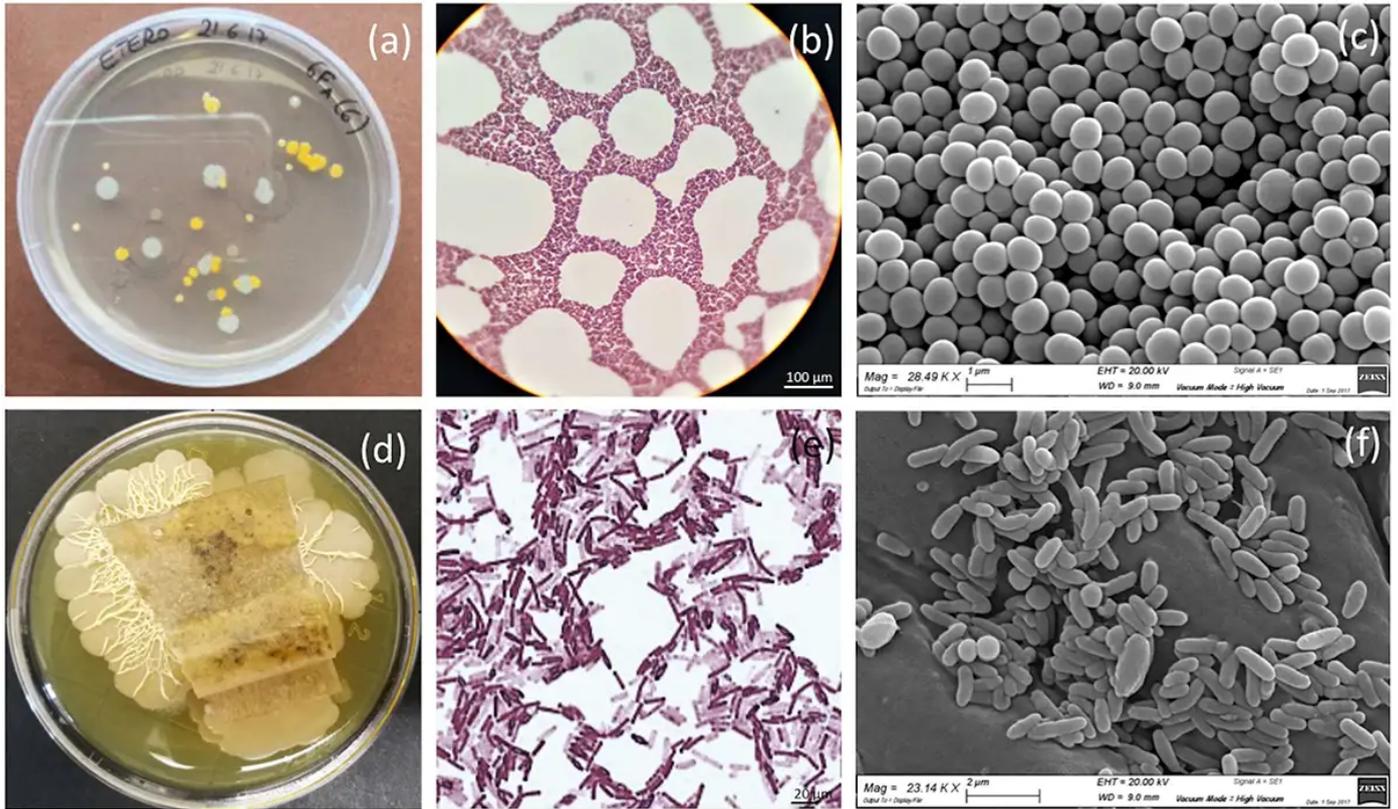
By **Sam Wong**

Pigment-eating microbes play a part in degrading priceless paintings, but other microbes may help us to save them.

Just like our bodies, oil paintings are home to a community of microorganisms, but few studies have attempted to describe them.

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The researchers isolated multiple strains of *Staphylococcus* and *Bacillus* bacteria that were living on the painting, as well as thread-like fungi from four genera, including *Aspergillus*, *Penicillium*, *Cladosporium*, and *Alternaria*. They also identified pigments such as red and yellow earths and red lac that could be nutrient sources for the microorganisms.



Bacteria detected on the painting: Samples were collected from the front (a, b, c) and the back (d, e, f) of the painting.

Caselli et al., 2018

As a clinical microbiologist, Caselli has spent years researching ways to eliminate harmful microbes in hospitals. Her team has found that detergents containing spores of harmless *Bacillus* bacteria can counteract the growth of pathogens, so they tried the same approach to help preserve paintings. Their *Bacillus* treatment almost completely inhibited the growth of bacteria and fungi isolated from the painting. Further tests will be needed to make sure the treatment would not be damaging to the painting itself, Caselli says.

She believes that a detailed analysis of the microbiome on paintings could become an essential part of restoration efforts in the future. “As a starting point, *Bacillus* compounds might be applied as a mild alcoholic solution to the reverse of paintings, protecting this surface from attack by potentially dangerous microbes,” she says. This approach has already been used successfully for stone artworks.

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