Unusual microbes could hitch a ride with travellers

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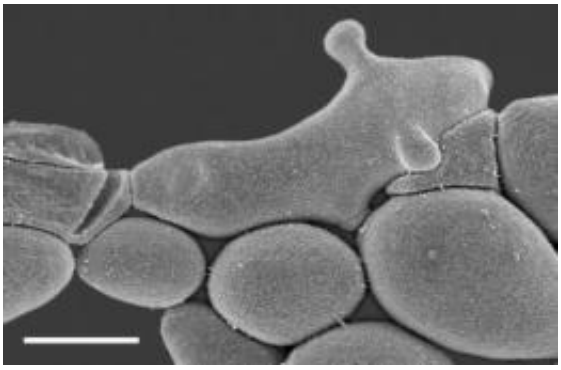

This is a scanning electron micrograph of *Saccharomycopsis fodiens*, showing its predacious appendages. Credit: B. Schlag-Edler

A rare and unusual new species of yeast has been identified at three separate locations across the world, reported in the *International Journal of Systematic and Evolutionary Microbiology*. The findings suggest a link between the distribution of specialized microbes and human migrations.

The novel strain of yeast has been named *Saccharomycopsis fodiens* and was isolated from flower-associated beetles in three geographically distant locations in Eastern Australia, Costa Rica and the Galapagos islands.

Researchers from the Western University, Canada, the Federal University of Minas Gerais, Brazil, and the Catholic University of

Ecuador isolated thousands of yeasts from sap beetles found on flowers all over the world. They only found *S. fodiens* three times, compared to other yeast species which occur predictably and abundantly in beetles. Interestingly, the yeast is parasitic to other yeasts, boring holes in their cell walls, leading to their destruction. It is also unusual in that it doesn't use sulphates for growth - in contrast to most other yeasts.

The authors say the discovery of the species in such geographically distant locations provides clues about how micro-organisms spread across the globe. "The collection sites for *S. fodiens* are compatible with the hypothesis that ancient Polynesians migrated southward from Taiwan and then eastward across the Pacific and eventually South America carrying sweet potato plants, whose flowers carry similar insects and yeasts," explained Professor Marc- André Lachance who led the team of researchers.

"The global dispersal of micro-organisms remains poorly understood, and it is tempting to fit the problem to the "Everything is Everywhere" model," he said. "However, it is quite plausible that human migrations, along with the displacement of domesticated or commensal plants or animals, could account for the rapid dispersal of very specialized micro-organisms."

The findings should allow testable hypotheses to be formulated about the influence of human migrations over the global distribution of micro-organisms. "We hope that yeast biodiversity researchers in other parts of the world will be on the lookout for this yeast species, so that our human migration hypothesis can be tested. This will improve our understanding of how microbes are dispersed," said Professor Lachance. "The next step for this research is to identify the centre of origin for *S. fodiens*. If it matches the supposed point of departure or passage of human migrations, this would provide further evidence for our theory."

More information: “Saccharomycopsis fodiens sp. Nov., a rare predacious yeast from three distant localities,” dx.doi.org/10.1099/ijs.0.043109-0

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