Maquipucuna cloud forest in Ecuador yields new species of yeast

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In a unique collaboration between scientists from the UK, Ecuador and Réunion, a new species of yeast has been discovered growing on the fruit of an unidentified and innocuous bramble collected from the biodiversity-rich Maquipucuna cloud forest nature reserve, near Quito, in Ecuador.

"We are actively looking for new yeasts with the ability to ferment plant material to produce bio-energy," said Dr Steve James from the National Collection of Yeast Cultures at the Institute of Food Research in Norwich.

The collection of yeasts at the institute is already used for bread and brewing as well as many other biotechnological applications. They are also studied for their role in causing food spoilage and human infections.

The scientists have named the new yeast, which produces characteristic Saturn-shaped spores, *Saturnispora quitensis* in honour of the residents of Quito, who are known as the Quiteňos.

The Maquipucuna Reserve is the gateway to the Chocó Andean Corridor, one of the earth's top three biodiversity hotspots. The Reserve harbours at least 350 species of birds or 4% or the earth's bird diversity, 45 species of mammal, more than 250 species of butterflies and over 2200 plant species including a rich diversity of epiphytes.

The team has a further 300 to 400 yeasts to characterise, isolated from a

wide variety of insects and plants collected in Ecuador. Other related species have been isolated in neotropical regions from a variety of sources including flies, flowers, forest soil, insect droppings, leaf litter, tree bark and exudate, and wild mushrooms.

The findings show the importance of biodiversity-rich regions, not just for the iconic animals and plants chosen as flagship species but for lesser-known organisms, many of which are of microbial origin that can be used in green technologies.

Professor Javier Carvajal is lead scientist of the Ecuadorian team from the Colección de Levaduras Quito Católica (CLQCA) at the Pontificia Universidad Católica del Ecuador.

"Dr Carvajal and his team are boldly going into habitats never previously explored by yeast biologists," said Dr James.

"It's exciting not only to see and describe the new yeast biodiversity from this neotropical region, but also to look for species with novel biotechnological properties."

"It also seems a strange coincidence that a yeast found on the Earth's equator should produce spores reminiscent in shape to that of the planet Saturn, which has rings orbiting around its equator!"

More information: Saturnispora quitensis sp. nov., a yeast species isolated from the Maquipucuna cloud forest reserve in Ecuador, *Int J Syst Evol Microbiol* (2011), DOI 10.1099/ijs.0.030759-0

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