3-D printed flowers provide insights on how orchids attract pollinators

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By using 3D printing to make casts fir realistic artificial flowers, researchers have discovered how a type of orchid deceives flies into pollinating it, by pretending to be a mushroom.

Dracula lafleurii, a shade-loving, tree-dwelling orchid species of the Ecuadorian Andes, often grows close to mushrooms and resembles them in shape, color, and scent. By producing artificial flowers that were color matched and made of scent-free surgical silicon to which scent could be added, investigators found that a mushroom-scented labellum and a showy, patterned calyx of Dracula orchids work together synergistically to exploit the visual and chemical preferences of drosophilid flies.

"Dracula orchids are endemic to remote cloud forests making standard approaches challenging. The collaboration between artists and scientists allowed the use of a new technology to elucidate the multi-modal nature of communication in this system," said Dr. Tobias Policha, lead author of the New Phytologist article. "3D printing provided an important tool for experimental manipulation of these complex traits under extreme field conditions. Due to the potential uses that we demonstrate here, we suspect that these techniques will soon become widespread."

More information: Tobias Policha et al. Disentangling visual and olfactory signals in mushroom-mimicking orchids using realistic three-dimensional printed flowers , *New Phytologist* (2016). DOI: 10.1111/nph.13855

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