

There's no way of knowing for sure, but astronomers studying the chemical composition of lavender-hued creatures have discovered that purple bacteria may now be included in the search for extraterrestrial or alien life.

A new study reveals that these bacteria are best adapted to arise on distant worlds that circle tiny red stars smaller than our Sun and that they may have dominated Earth early in our planet's existence, according to Space.

The latest cataloging effort is in part "to create a database for signs of life to make sure our telescopes don't miss life if it happens not to look exactly like what we encounter around us every day," study co-author Lisa Kaltenegger of Cornell University said in a statement.

"Purple bacteria can survive and thrive under such a variety of conditions that it is easy to imagine that on many different worlds, purple may just be the new green."

The search for alien life is aided by the knowledge that life only exists on Earth, the only planet known to support life, where oxygen is produced through photosynthesis by chlorophyll, the well-known green pigment that most living things use to absorb sunlight.

This was not the case until about 2.4 billion years ago, when the earliest known species of blue-green algae, known as cyanobacteria, started to photosynthesize.

They did this by using chlorophyll to absorb carbon dioxide and sunlight for metabolic energy, and as a consequence, they generated oxygen.

Earlier still, microbes produced metabolic energy by absorbing sunlight through the use of a purple-pigmented chemical called retinal, which may have originated before chlorophyll.

Scientists believe that the distinct fingerprint of retinal, if it exists on other distant worlds, would be detectable by future ground- and space-based telescopes.

"They already thrive here in certain niches," said study lead author Lígia Fonseca Coelho of the Carl Sagan Institute in New York. "Just imagine if they were not competing with green plants, algae and bacteria: A red sun could give them the most favourable conditions for photosynthesis."