

# Two planets orbiting Teegarden's star described as most earthlike found yet

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A pair of researchers, one with the Hebrew University of Jerusalem, the other Tel Aviv University, has found evidence that suggests two of Teegarden's star planets are the most Earth-like found yet. In their paper published in *The Astrophysical Journal Letters*, Amri Wandel and Lev Tal-Or describe their study of the two exoplanets and what they found.

Back in 2003, astrophysicist Bonnard Teegarden led a team that

discovered what is now known as Teegarden's star—a red M [dwarf star](#) approximately 12.5 light-years away. Since that time, space scientists have studied both the star and the [planets](#) that make up its star system. In this new effort, the researchers focused their efforts on two of those exoplanets, which are called Teegarden's star b and c—both were first detected this past June by a team working on the CARMENES survey.

The work by Wandel and Tal-Or was focused on learning more about the habitability of the two exoplanets. As part of that effort, they noted that both are relatively close to their star, with orbits of just 4.9 and 11.4 days, putting them both firmly in the Goldilocks zone. They note that both are tidally locked, which means one side always faces the sun, which also means they have no day/night cycle.

The researchers acknowledge that it is not known what sort of atmospheres the two planets have, but suggest it is likely either or both could support water. This is because they are tidally locked, which means that even a thin atmosphere would be enough to spread the warmth and cold across the dark/light dividing line. They calculated that atmospheres between one-third that of Earth's or as much as 17 times as dense would allow for [liquid water](#) to exist on the surface of either planet. They also note that both of the planets are near in size to Earth. And as part of applying an analytic habitability model to the planets, the researchers calculated that Teegarden b has a 60 percent chance of having surface temperatures between zero and 50 degrees C—Teegarden c was found to be colder, much more like Mars. The researchers conclude that conditions in the transition zone appear to be favorable for supporting life.

**More information:** Amri Wandel et al. On the Habitability of Teegarden's Star Planets, *The Astrophysical Journal* (2019). [DOI: 10.3847/2041-8213/ab2df7](https://doi.org/10.3847/2041-8213/ab2df7)

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