The Curiosity rover’s failure to detect methane on the Mars may complicate the search for life there, say mission scientists.

According to NASA, the rover operated several tests, from October 2012 until June 2013, to estimate the presence of methane in Mars’ atmosphere using the onboard Tunable Laser Spectrometer that can detect trace levels of methane.

Curiosity revealed no trace of methane on Mars, which challenged the researchers.

When they revised previously detected amounts of methane, which would be found on the planet, NASA estimates the amount of methane in the Martian atmosphere is around 1.3 parts per billion, a sixth of what was previously believed.

NASA confirmed about its findings after two seasons of methane hunt. The research was published in the journal Science Express.

Previous estimate, of 45 parts billion, might have indicated a biological source for methane. Now, since Mars lacks methane, scientists are losing hope in searching for life on the planet.
The previous estimates were measured from the Earth; and methane to vanish overnight makes no sense as the gas can last for hundreds of years in the atmosphere, according to co-author Sushil Atreya, from the University of Michigan, Ann Arbor.

"Without a way to take it out of the atmosphere quicker, our measurements indicate there cannot be much methane being put into the atmosphere by any mechanism, whether biology, geology, or by ultraviolet degradation of organics delivered by the fall of meteorites or interplanetary dust particles," said Atreya.

According to the new Curiosity data, Atreya estimates between 10 and 20 million tons of methane flow into the Martian atmosphere. That means, it would be around 50 million times less than the amount of methane entering Earth’s atmosphere, reports NASA.

The special interest in the gas comes from the fact that microbial organisms on Earth produce 95 percent of atmospheric methane. Methane plays a significant role in the search for life in space.

Saturn’s moon Titan has high percentage of methane, a hopeful sign of life. Certain areas of Titan are believed to be ice volcanoes that produce methane.

"These results have important implications for Titan’s potential to support life as these cryovolcanic areas might contain environments that could harbor conditions favorable for life," said Anezina Solomonido, from the Observatoire de Paris and National and Kapodistrian University of Athens, who presented the research at the European Planetary Science Congress 2013.

Despite the discovery by Curiosity that seems to discard methane-produce microbes, Mars may still hold life, according to Michael Meyer, NASA’s lead scientist for Mars exploration.

Meyer said in a statement, "It reduces the probability of current methane-producing Martian microbes, but this addresses only one type of microbial metabolism. As we know, there are many types of terrestrial microbes that don’t generate methane."

Source