A recent study presented at the 56th Lunar and Planetary Science Conference raises questions about whether microbes could survive in the Moon's permanently shadowed regions (PSRs), specifically in craters located at the poles. These areas, due to the Moon's slight axial tilt, never receive sunlight, creating extremely cold conditions that might be suitable for microbial preservation.

The research, conducted by a team of scientists from the U.S. and Canada, aims to investigate whether microorganisms could survive in such conditions. Scientists used models to determine whether the low levels of ultraviolet radiation and heightened temperatures within these craters might allow microbes to remain viable. Particular focus was given to the Shackleton and Faustini craters, which are targets for future Artemis missions.

According to the study, despite harsh conditions such as the absence of light and extremely low temperatures, PSRs could be among the most protective areas on the Moon for microbes, which are often found on spacecraft. These microbes might not thrive but could remain viable for decades.

However, a major concern is the potential contamination of these unique regions with terrestrial microbes. Human missions could result in the introduction of unwanted microbes, leading to inaccurate scientific findings. This is crucial for future missions, as researchers plan to study lunar ice that may contain organic molecules similar to those found in comets.