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BACTERIAL COLONISATION ON MARS TO SUPPORT FUTURE SPACE SETTLEMENTS

Abstract

Life sustenance on another planet has always been a question of interest for the humankind for years. The search for life in an exoplanet is a never ending topic and demands a lot of cooperation and complete understanding of the physics of the space environment. We are blessed to have Earth situated in the right distance from the Sun and occupying a very distinct position. Moreover, Earth is protected from the extreme conditions of the space environment by its very own magnetic field and above all, the Ozone. But with the booming population in Earth and continuous depletion of natural resources due to exponential increase in its demand, we are put at stake of finding a new place for habitation, leading to finding possible solutions for developing habitation in our neighboring planet, the Mars. With the aim of colonizing the red planet, Mars, bacterial colonization is used as the step 1 process which will help us in increasing the oxygen content in the Martian atmosphere as well as making the Martian soil fertile for plantation. Bacteria, being the least complex life form on Earth is known for its attributes to flourish in great conditions, thus, making the Darwin's hypothesis of survival conceivable on Mars also. Our principle center is on utilizing these microscopic organisms to separate complex iron oxide into free iron and oxygen, in this way discharging the oxygen into the environment and the free particles of iron settle down in the soil making acidic in nature. The acidic nature of soil makes it suitable for cranberries and blueberries plantation. Plants can change the encompassing environment to its prerequisites, at the appointed time making that place tenable by people. This project involves extensive research but under simulated conditions in Earth itself. One more advantageous aspect of this ideology is the cut down at the overall expenditure as setting up a bacterial colony is easier and also cost efficient.