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MICROBIAL COLONIZATION OF MARS

Abstract

Extremophiles are organisms which are known to live in extreme environment, the environment which makes survival challenging. When Extremophiles are introduced to Astrobiology, can alter the future of biology in different planets. Extremophiles, which can be enhanced to adapt the changes in space, will allow them to travel from one planet to another. Recent studies have proven that *G. thermantarcticus* can possibly survive harsh conditions on stimulated models of space and Mars, which included the data for 8 days and showed minimum fluctuation and higher adaptability to the Martian conditions. Theoretically, If they are able to survive in that harsh conditions, if reproduced can lead to variations in the daughter cells which have higher affinity to sustain harsher conditions which in-turn can also lead to colonization and higher adaptability to newer environments. Using it as a reference if we aim to genetically enhance the species of other genus, possibly leading to high rate of survival to the Martian conditions. the genetic enhancement could be carried by changing the plasmid DNA and bombarding the microbe. This mutation could be affected by the microgravity and radiation while transportation, for which we could use lead chamber for protection against radiation and also bombard the microbe into Martian surface. The microgravity effects can be studied by simulations and counter the problems faced. The aim of this project is the possibility of colonization of microbes on Mars and hopefully produce new generation with innate potential to survive in Martian surface.