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SILICON UTILIZING ORGANISMS AND THEIR POSSIBLE ROLE IN TERRAFORMING

Abstract

Background: Silicon utilizing organisms may be defined as organisms, which contain >1 percent(dry mass) silicon in their body with or without demonstrable silicon transport gene (SIT) in them. There is a wide range of organisms like bacteria, algae, sponges, monocotyledon plants etc. which belong to this category. Records of past major extinctions on earth indicate that this group of organisms could survive well in such happenings and experimental evidences suggest that they are very much tolerant to physico-chemical stresses in nature. Thus these facts allow them to categorize under a distinct group of "naturally occurring terraforming organisms" which may be exploited in any terraforming process. Methodology: A taxonomical classification of silicon utilizing organisms is made from different available resources. Important published papers from different search engines were explored to find out evidences of their survival in major extinctions on earth and their toleration to physico-chemical stresses. Some wet experimental data of possible terraforming with them is also incorporated as a support of the hypothesis. Result: After analysis of available data it was found that they can be used easily in any terraforming process. A protocol of their possible use in terraforming and a list of the most suitable organisms for this process was prepared. Conclusion: Silicon utilizing organisms may be used in terraforming processes following a well defined protocol.