26th IAA SYMPOSIUM ON HUMAN EXPLORATION OF THE SOLAR SYSTEM (A5)
Deep Space Habitats and Resources (4)

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SUSTAINABLE WHOLISTIC SPACE IN-SITU FARMING UTILIZING NUTRITION FROM DIVERSE MICROGREENS AND AFRICAN GIANT SNAILS

Abstract

The paper "Sustainable Wholistic Space In-Situ Farming Utilizing nutrition from Diverse Microgreens and African giant snails" presents a novel approach to in-situ farming in space, which is both sustainable and wholistic. The proposed system utilizes microgreens and African giant snails as a source of nutrition for astronauts, while also contributing to the recycling of waste and air purification in space habitats.

The system is designed to be modular, scalable, and adaptable to a variety of space habitats. It includes a hydroponic system for growing microgreens and a snail breeding system for producing African giant snails. The waste produced by the snails is used as fertilizer for the microgreens, while the microgreens provide nutrition for the snails. The snails also contribute to air purification in the habitat, as they consume carbon dioxide and produce oxygen.

The paper presents the results of a proof-of-concept study, which demonstrated the feasibility and effectiveness of the proposed system. The study involved growing a variety of microgreens and breeding African giant snails in a controlled environment. The results showed that the system was able to produce a significant amount of nutritious food, while also contributing to waste recycling and air purification.

The proposed system has several advantages over traditional food production methods in space. It is sustainable, as it relies on recycling waste and utilizing renewable resources. It is also wholistic, as it provides a diverse range of nutrients and contributes to the overall well-being of astronauts. Additionally, the use of African giant snails as a food source reduces the need for additional food shipments from Earth, which can be expensive and logistically challenging.

Overall, this paper presents a promising approach to sustainable and wholistic in-situ farming in space. The use of microgreens and African giant snails as a source of nutrition, waste recycling, and air purification has the potential to contribute significantly to the long-term sustainability of space habitats. The proposed system is adaptable, scalable, and can be customized to meet the specific needs of different space habitats and missions. Further research is needed to optimize the system and to evaluate its feasibility for implementation in space habitats.