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TERRARIUMS: BUILDING PERMANET SUSTAINABLE ECOSYSTEMS

Abstract

This paper is based on the Plan T, which was presented during last year's IAC-23. In this paper I have discussed on the advancements and new results that have not been previously mentioned.

Terrarium, a closed ecosystem containing plants, animals, and insects which represent a similar environment to what we have on Earth. To establish a permanent and self-sustainable ecosystem, constructing our own ecosystem is crucial. I firmly believe that there is no better starting point than working on a terrarium. These little ecosystems can provide nutrients for living insects and animals, the dead bodies of these living creature can boost the efficiency of the soil, and at the same time the plants can photosynthesis which eventually lead to having a water cycle that can provide the water needed by the ecosystem.

Now let's dive deeper in the advancement which will be presented in this paper. The variety of available plants to be used in the terrariums is vast, so it is good idea to analyze plant selection as well as introducing a new light source to boost plant growth. The suggested idea presents the idea of using high-pressure-sodium light instead of using led lights when we are using specific rhythm of applying lights with passive and active mode during specific period of time which lead to have a better growth rate.

Another idea that is going to be discussed is using methane gas produced by the insects as a source of energy. Recent research on global warming revealed that termites, consuming decaying plants, may contribute to 30 percentage of global warming by emitting methane gas so why we are not using this phenomenon as an advantage for the ecosystem. Therefore, since we are dealing with an ecosystem we can use the methane gasses produced by the living creatures to provide the heat and other needs of energy in our ecosystem.

Furthermore, this paper discusses the concept of using large barriers filled with O3 to block most of the dangerous radiation from the sun, which is covered around the structure of the terrarium. The type of materials used in the structure of the terrarium is also another vital factor for the ecosystem that we are working on.

In conclusion, the terrarium concept has numerous applications and aspects to be explored. In my opinion, terrariums could be the future for human beings.