Cultivation Using Self-Germinating Fungus Capsules

AL-Misaifri, Sultan (School: Jassim Hamad Independent Secondary School for Boys)
Alsayed, Talal (School: Jassim Hamad Independent Secondary School for Boys)

The idea of conducting this research stemmed after the imposition of the unjust siege on Qatar on 5/6/2017, when we noticed a shortage of some basic agricultural crops that are frequently used in every Qatari home. For example, but not limited to, vegetables of various kinds, tomatoes and cucumbers, if made available, their high prices are a burden on consumers in Qatar. Here, we designed a capsule made of mainly carbohydrate that have the ability to decompose in the soil in a short period of time and acts to combine the seed with Mycorrhiza fungus. Mycorrhiza fungus is usually isolated from the roots of the floral plants. The fungus is characterized by causing physiological changes in the plant, which in turn affect the production and quality of the crops. Mycorrhiza help the plant to absorb water and nutrients such as nitrogen and phosphorus from soil, in addition, it helps the plant to tolerate salinity and various temperatures. We have used gelatin to produce the capsule after several experiments in the laboratory. Gelatin and Duxi agar were dissolved in warm water, then placed in a mold, to which, the seeds and fungus were added and the capsule left to solidify. Seeds with and without capsule were grown in different pots under experimentally controlled conditions. We observed that the seeds associated with the fungus in the capsules grew faster with higher root density compared to the seeds grown without fungus. We propose the application of capsule for enhancing the growth of the crops.

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