Can the Application of Vegetable Oil to a Soil Surface Reduce Soil Evaporative Losses and Conserve Water to Avoid Aridity?

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A region is arid when it is dry, and frequently infertile. Soil can be arid and dry due to evapotranspiration. Evapotranspiration is the combination of water evaporation from the soil and transpiration in plants. These processes lead to significant loss of moisture from the soil. The goal of this project is to determine how water loss can be prevented by examining the effects that different vegetable oils have on moisture retention in soil. The hypothesis under study was that if corn, sunflower, or canola oil is applied to the surface of peat soil samples, it will lead to the peat soil retaining more of its moisture; in contrast to a sample of peat soil with no vegetable oil applied. To test this hypothesis, an experiment was conducted to better understand the retention of moisture in the soil. The experiment was performed by spraying the different types of vegetable oil unto the samples of wet peat soil. The weights of the 20 samples were measured over a period of 5 days. The canola, sunflower, and corn oil experienced water losses at 7%, 8%, and 10%, respectively; whereas, the control group experienced a water loss at 16%. The experiment showed that peat soil treated with vegetable oil retained more water than the peat soil without vegetable oil. These results evidenced that the hypothesis was indeed correct. This research is important because the methodology described can be used to enhance water conservation effort by stimulating awareness concerning the importance of soil water management.

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