Use of Tenebrio molitor in Plastic Biodegradation

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The purpose of this experiment was to test if mealworm larvae are an effective plastic cleanup method. 1500 mealworms were divided into 15 different habitats with 100 larvae in each group. Five different plastics were added to the habitats - polyethylene terephthalate (water bottle), polystyrene (styrofoam), polycarbonate (CD Disk), low-density polyethylene (plastic bag), and polypropylene (fork). Every week on the same day, the plastic was removed from the habitats. The amount of plastic was measured in grams, the results were recorded, and the plastic was returned to the habitats. The experiment continued for six weeks. After six weeks the data was analyzed to find the change in mass. The results of this experiment concluded that mealworms are efficient at biodegrading plastic. The plastic that had the most significant change in mass was the Low-Density Polyethylene (Plastic Bag), with an average 0.8 g consumed. This was then followed by the Polystyrene (Styrofoam), which had an average 0.74 g consumed. Next was the Polyethylene Terephthalate (Beverage Bottle), with an average 0.64 g consumed. Last, the Polypropylene (Plastic Fork) had an average of 0.37 g consumed. The results in this experiment were successful. All the test groups were able to have a change in mass. This experiment concluded that the process of mealworms biodegrading plastic is an efficient alternative plastic cleanup method.

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