Development and Evaluation of a New Sargassum Collection Design for Beaches

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Sargassum is a macroalgae that accumulates on beaches throughout the Caribbean. It is a problem for local economies and tourism. As it dries, it emits hydrogen sulfide, which causes a strong, unpleasant odor and respiratory irritation to people in the area. This degradation of the beach conditions leads to a decrease in tourism, which reduces the sales of merchants. To solve this problem, a prototype is developed. The prototype was designed to collect the rotted sargassum on the beaches. Due to time constraints, Sphagnum moss was used to simulate sargassum and the prototype was tested in a controlled environment. The criteria for the prototype were to move forward in one direction and collect Sphagnum moss. The first test was conducted on the base, and after adjustments were made, it was moved to the second test, which tested the conveyor's ability to collect Sphagnum moss. During the test, it took 13 minutes to collect approximately 0.45 kilograms of Sphagnum moss, with 14 interruptions due to design limitations. The results showed that the wheels worked, but the conveyor needed improvement. The prototype has the potential to collect sargassum on beaches, but the design and choice of materials need to be optimized. Modifications such as changes in design and testing with sargassum are to be implemented in the future. The prototype can be used as a tool to collect not only sargassum on beaches, but also light organic material. This can help the environment by reducing organic material that causes problems in ecosystems.

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