Only in the land of milk and honey

Bee-io offers a sweet solution in a world of diminishing honeybees

by DINAH ELASHVILI

The bee population has been dwindling rapidly around the world in recent years. The reasons are multifold: pesticide use, habitat destruction, global warming, and more. The disappearance of bees poses a major problem, not only to the honey industry—which is finding it more and more difficult to meet the ever-increasing market demand for honey—but to the farmers who rely on bees to pollinate many of their crops. As such, this sharp decline in bee populations could be devastating to the global food chain.

Ofir Dvash—former CTO at startup incubator GKI Group—and his sister Efrat, a Weizmann alumna who earned her PhD in molecular genetics, have come up with an alternative solution to this global problem, which would not only help the beleaguered honey industry but could also help replenish the declining bee population.

Living up to their names

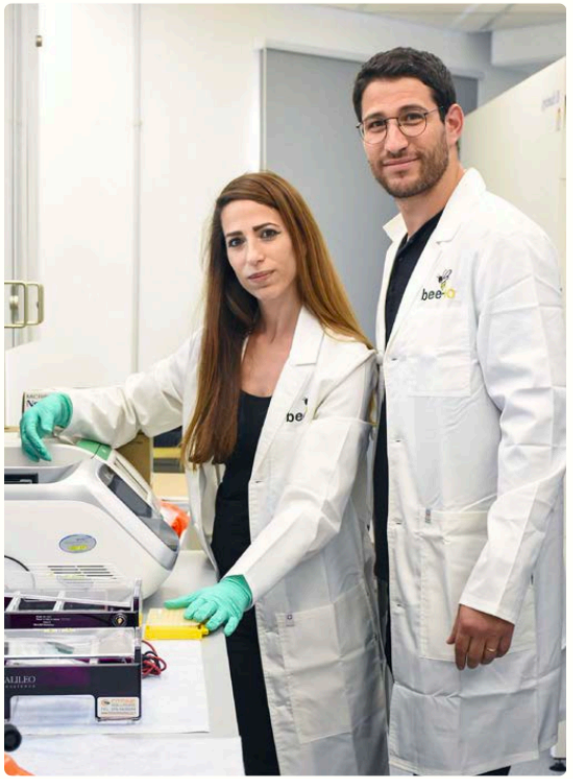
As the founders of Bee-io Ltd.—a company that is producing "cultured" honey—the Dvash siblings, whose surname literally means "honey" in Hebrew, are living up to their name. Their company has developed an artificial bee stomach that mimics the complex and multi-step process that occurs within a bee's body as it transports the nectar from flower to hive. Similar to the honeybee stomach itself, Bee-io's technology can break down the sugars of the nectar, oxidize the glucose molecules, and partially evaporate the liquid to achieve honey's desired viscosity.

Unlike honey knock-off products currently on the market, which simulate the sweet and sticky substance by mixing many chemicals together, the honey produced by Bee-io is as natural and provides the same health benefits as pure honey.

"When we buy a jar of honey, we don't always know if it has the good ingredients we hope for," Efrat says. "Manufacturers do all sorts of things to maintain profitability. Only 50 percent of the honey produced in Israel has Israel Honey Board certification, meaning half of the honey doesn't undergo inspection through the Standards Institution of Israel, the official organization that ensures the quality of a product in the country. And the global situation is even more problematic."

The new buzz: an artificial stomach

Because Bee'io's artificial stomach does not require actual living bees, the company's technology could potentially help replenish the wild bee population—a noteworthy achievement, as wild bees are responsible for the pollination of many wild plants, which honeybees cannot effectively pollinate. Studies have found that honeybees fiercely protect their territories and will not let other bees within a mile radius of their hives. Consequently, the huge domesticated colonies of honeybees on honey farms have been driving out wild bees, threatening their numbers, and affecting the reproductive cycle of many plants.



Efrat Dvash and Ofir Dvash

In addition to its artificial stomach, Bee-io has also patented a technology that enables the large-scale production of nectar. With the combination of these two technologies, the company's process precludes the need for honeybees—from the initial moment of nectar collection to the final stage of honey production.

"With Bee-io producing natural, inexpensive, sustainable, and pesticide-free honey," Efrat explains, "we may soon be able to meet the global demand for honey, while simultaneously protecting the fragile bee population." //

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