

# Ingredients used in chewing gum help tilapia survive cold climates

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Measured amounts of Arabic gum and lecithin are kneaded into fish food before being dropped into fish tanks containing Nile tilapia fingerlings. Credit: Benha University / National Institute of Oceanography and Fisheries, Egypt

Two common ingredients in ordinary chewing gum—Arabic gum and lecithin—have been found to help improve the overall health of tilapia, helping these fish survive better even in cold climates. This discovery paves the way for raising tilapia for food outside of the tropical regions where they are commonly farmed.

Native to Africa, the Nile tilapia (*Oreochromis niloticus*) has been raised for food since [ancient times](#) due to its fast rate of reproduction. It is now a common sight in markets across [tropical countries](#), including the Philippines and Indonesia. However, *O. niloticus* is sensitive to cold and only thrives in [warm water](#) within the range of 26°C to 30°C.

A recent study by an international team of researchers from Egypt and the Philippines, including Ateneo de Manila University Department of Biology's Dr. Janice Alano Ragaza, tracked the weight, growth, blood chemistry, and enzyme levels of Nile tilapia fingerlings fed on varying amounts of Arabic gum and lecithin.

Arabic gum and lecithin are common ingredients found in chewing gum and other foodstuffs. Arabic gum is made from sap, usually from the *Acacia senegal* or *Sengalia senegal* tree. Lecithin is a common emulsifier derived from a variety of sources, including eggs, soy beans, and sunflower seeds. Both have a wide variety of food uses, including in off-the-shelf chewing gum.

The researchers found that Nile tilapia fingerlings fed on 4 grams of Arabic gum and 10 grams of lecithin per kilogram of fish food over the course of three months led to increased levels of minerals, enzymes, and antioxidants that help the fish overcome the stresses of living in winter.

This change was more than just physiological, as it was found that the diet even activated [specific genes](#) associated with surviving cold temperatures.

The study, [published](#) in *Aquaculture Reports*, was jointly undertaken by Benha University, the National Institute of Oceanography and Fisheries in Egypt, and Ateneo de Manila University in the Philippines.

**More information:** Mohamed R. Soaudy et al, The modulatory impact of Arabic gum and lecithin on the efficiency of cold-stressed Nile tilapia (*Oreochromis niloticus*), *Aquaculture Reports* (2024). [DOI: 10.1016/j.aqrep.2024.102332](#)

Provided by Ateneo de Manila University

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