A SUBSTITUTE FOR PALM OIL COULD COME THANKS TO MICROALGAE
A team of scientists in Singapore has identified ways to use microalgae to produce a palm oil substitute.

Palm oil is the most widely used vegetable oil on the planet. It is estimated that about half of all food products (and others) sold on supermarket shelves contain at least a small amount. As an oil it is also present in many
industrial productions thanks, both to its desirable intrinsic properties, and to the fact that it is relatively cheap to produce. For its production, however, large areas of forests are cleared every year to make room for new palm plantations. Researchers at Singapore’s Nanyang Technological University (NTU) may have finally found a viable replacement palm oil thanks to the unexpected help of some microalgae.

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From microalgae the substitute for palm oil.

The oil extracted from these microalgae would be edible and with chemical-physical properties completely similar to palm oil, thus making it an ideal substitute. Not only that: microalgae oil would also have some more desirable characteristics such as a higher presence of polyunsaturated fatty acids and a lower presence of saturated fatty acids, which could help reduce the levels of "bad" cholesterol in the blood and reduce the risk of heart disease.

A more sustainable alternative to palm oil.

The microalgae would have the advantage of being able to be cultivated, unlike palm trees, also in vertical farms, thus greatly reducing soil consumption. To breed Chromochloris Zofingiensis, the algae capable of producing a substitute for palm oil, a solution of pyruvic acid, an organic acid present in all living cells, is required. For its production, researchers have developed a method capable of producing it thanks to the fermentation of food waste from the fruit industry. The soil for microalgae crops can instead be obtained thanks to the fermentation of residues from soybean production. This would not only help reduce production costs, but would help limit food waste.
How microalgae oil is produced.

To produce the oil, pyruvic acid is added to a solution that contains Chromochloris Zofingiensis algae. The solution is then exposed to UV rays to stimulate photosynthesis. After 14 days of exposure, the microalgae are washed, dried and treated with methanol to break the protein bonds and allow the oil to be extracted. According to the researchers, if the production took place with sunlight instead of UV lamps (which require electricity), the whole process could actively act to remove carbon dioxide from the atmosphere.

READ ALSO: The European Union will promote the production of algae for food.

When will we see the palm oil substitute?
It’s hard to say when we will see microalgae oil take over as a substitute for palm oil in food production. Singaporean researchers say they are working to **optimize oil extraction methods** to improve yield, quality and cut costs. The project has already attracted the interest of **some partners** in the food sector and a first phase of expansion of the project could already take place **in the next two years**.

Thanks to the remarkable properties of microalgae oil, the team also aims to add it to **plant-based “meat” productions as well as to pharmaceutical** and **cosmetic** ones. But as is often the case in these cases, it may take **several years** before you see a commercially available product.

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