Je Science donc J'écris

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The palm of success

Palm oil is the world's most consumed vegetable oil, 62 million tons produced per year, it has given rise to many debates ... What is it made of and how can we explain such a massive production? Let's talk about this oily subject together.

The oil palm, with its botanical name Elaeis guineensis, is a tree over 15 meters tall with leaves nearly 5 meters long. It grows in areas near Ecuador and is very productive. Its fruits are arranged in a cluster called a "bunch" containing up to 1,500 ovoid and orange fruits. Although oil palm has been discovered in West Africa, it is now mainly cultivated in Indonesia and Malaysia where tropical rainforests have been replaced by palm groves and agricultural plots for the cultivation of palm trees. Together, these countries supply 85% of the world's palm oil production with more than 20 million hectares of plantations recorded.

There is only one palm oil, however two types of oil are derived from it. The first, palm oil, which is red due to its high beta-carotene content, is extracted from the mesocarp - the fruit pulp, which contains 50% lipids. Palm kernel oil is extracted from the nucleus, which also contains 50% lipids. However, these two oils differ in their fatty acid composition.

In fact, palm oil contains 50% saturated fatty acids and 50% unsaturated fatty acids (mainly palmitic acid and oleic acid) while palm oil contains 80% saturated fatty acids

(mainly lauric acid and myristic acid).

Fatty acids carbon chain acid are compounds. The length of the latter gives the name and specificity of fatty acid and its hydrogenation state gives rise to fatty acids that are called saturated (rich in hydrogen) or unsaturated (rich in carbon-carbon double bonds). Depending on its fatty acid composition, the fat is more or less liquid or solid. Solid fats such as butter, margarine and palm oil are rich in saturated fatty acids, which can be harmful to health in high doses. They would be involved in the increase of cholesterol which could lead to cardiovascular diseases - so it should be consume in moderation!

But why is palm oil the most produced vegetable oil in the world? What is important to understand is that the oil palm is grown in a tropical climate and its fruits can be harvested every 10 days. per hA Palm tree can produce up to 40 kg of palm oil per year! Its cultivation is therefore extremely profitable with a production of 3.8 tons of oil hectare against 0.8 tons for rapeseed oil and 0.7 tons for sunflower oil.

Nevertheless, palm oil is highly valued in



industry not only for its yield or lower cost, but also for its physico-chemical properties. In fact, it has the advantage of being solid or semi-solid at room temperature and not oxidizing during cooking. In addition, it is stable over time and allows a long shelf life of the foods that contain it. Finally, it has a neutral taste and smell. It is therefore found many consumer products such confectionery, chocolate and bakery products, but also in non-food products such as soap, cosmetics and biofuels.

As a result, global demand is rising sharply, leading to an increase in production that is causing ecological disasters such as deforestation, the destruction of natural habitats of endangered species and a significant loss of diversity. However, the socio-economic reality is quite different: palm oil production stimulates the local economy and creates jobs (1 worker per 8 ha).

So how can we find an eco-friendly solution to palm oil production while meeting global demand and protecting the economies of the producing countries? Our project might not be the ideal solution, nevertheless it will offer an alternative. Stay tunned!

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