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Palm oil behaves like olive oil after consumption

My earlier research relates to free radicals and this knowledge in fact helped me to understand the edible oils, because free radical reaction is associated with the quality of oils, how to maintain good quality and many other things. Now, when I work on palm oil, there is a lot of confusion about nutritional properties, because people believe at that time that saturated fats are not good and bad for your heart. But now, research data show that saturated fat is not related to heart disease. It is a recent development.

At that time, in the late 80s, there was this concern about saturated fat and palm oil being 50% saturated therefore, people are worried about the nutrition aspect although palm olein saturation is only 40%. So, I studied the nutrition aspect by comparing palm olein with virgin olive oil. Why? Because the whole world believe that virgin olive oil is the gold mark, the best edible oil which has been used for 5000 years. But the world did not realise that palm oil was also used for 5000 years. I chose the best research institute to work with and that is Institute of Medical Research, Malaysia and the results show that there is no difference in terms of the effect of these two oils, palm olein which is 40% saturated, olive oil which is 15% saturated on the blood lipids, the LDL, HDL and the ratio of total cholesterol over HDL. These are the indicators whether the oil is bad for your heart. Now, work from IMR was very surprising against conventional thinking at that time. So, we thought we should repeat the project in other countries. So, this work was repeated in Australia, University of Sydney and the results were published in American Journal of Clinical Nutrition in 1995. We repeated this work in China with 100 candidates and again the information was verified and confirmed by their work. It was published in Asia Pacific Journal of Clinical Nutrition in 2016. So, it is established that palm olein is as good as olive oil. But how do you explain the finding?

This is where my contribution lies. I know people are concerned that palm oil is 50% saturated and palm olein is 40% saturated but what is important is you must know where the saturation in the molecule and most of the saturation in palm oil is at the end position and

the middle position is 90% unsaturated and that is the one that is absorbed into your bloodstream and will control your cholesterol level. All oils have a structure and for simplicity, the structure is like three bananas attached to the backbone and this gives us a picture. So, the first banana is attached to a position called sn1. The second banana attached to the second position called sn2 and the third banana attached to the third position called sn3. So, you have position one, two and three. I just want to get people to understand that all oils and fats have this structure. They have three fatty acids attached, but what is the difference between one oil to another one is that the different fatty acids and what is the difference between fatty acids is the chain length, the length of that chain is measured by the number of carbon atoms, how many carbon atoms it has, C12 contains 12 Carbon atoms, C16 16 carbon atoms.

The other difference between fatty acids is the presence of double bonds. Some oils are saturated, meaning that there are no double bonds. Some have one double bond known as mono-unsaturated and some have more than one double bond called poly-unsaturated.

So, what I said just now, is that the fatty acids at the second position is important, because after metabolism in your stomach, this fatty acid will be absorbed and influence your cholesterol level. Now, if this theory is correct, cocoa butter, the chocolate you eat, it is more than 60% saturated, it has saturated fatty acids at the first and third position, but the middle position in cocoa butter is 100% mono-unsaturated.

So, now if the theory proposed is correct, when you take cocoa butter and you compare with virgin olive oil (15% saturated), they both have the same influence on the cholesterol level. This is what happened and it has been tested and researched in Australia by CSIRO and the work has been published in the European Journal of Clinical Nutrition in 2019. Indeed, cocoa butter and virgin olive oil exert the same level of LDL cholesterol. This is very important. This changes the mind and thinking of the whole world about saturation. It's not that the overall saturation is important but the saturation at the second position is important. When most people are informed that this oil is 50% saturated, 90% saturated or 15% saturated but what people have not been explained is that the fatty acids are not randomly distributed. So when

you say palm oil is 50% saturated it does not mean 50% saturated at position one, position two and position three. In the case of palm oil, although palm olein is 40% saturated it is the average in the molecules, but the middle position is 90% unsaturated. This is important. Now why it is important? because in your stomach, the lipase enzyme acts on the oil and it acts at the end positions. It will remove these fatty acids and middle position fatty acids will remain and be absorbed into the bloodstream. So, it's the fatty acid at the middle position that's most important because it is the one that is absorbed into the bloodstream.

Now we go back to olive oil and palm olein. When olive oil gets into your stomach, the second position sn2, being occupied by mono-unsaturated and what is absorbed is a mono-unsaturated fatty acid into the bloodstream. When palm olein is attacked in the stomach, it is saturated (sn1), unsaturated (sn2) and unsaturated (sn3). So the saturated is removed but what is absorbed is 90% unsaturated. So the intermediate for palm olein and the intermediate for olive oil are similar and that's why they exert the same level of LDL and HDL and this explanation constitutes the sn2 hypothesis.

References:

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2. Welma Stonehouse et al., European Journal of Clinical Nutrition, 2019