



Review On The Nutrition Findings On Palm Oil

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Launching of MOSTA International Scientific Advisory Panel

15 April 2018

Kuala Lumpur, Malaysia

ARTICLE ONE

Dietary Palmitic and Oleic Acids Exert Similar Effects on Serum Cholesterol and Lipoprotein Profiles in Normocholesterolemic Men and Women

Authors:

Tony K W Ng, K C Hayes, G F DeWitt, M Jegathesan, N Satgunasingam, Augustine S H Ong and Daniel Tan



Brief:

N = 13 female, 20 male

Candidates were challenged with a coconut oil-rich diet for 4 weeks.

Subsequently, they were assigned to either a palm olein rich or olive oil rich diet followed by a dietary crossover during two consecutive 6-week periods.

Results:	TC	LDL-C	HDL-C	TG
Palm olein (F)	4.86	3.23	1.19	0.94
Olive oil (F)	4.86	3.28	1.19	0.86
Palm olein (M)	5.04	3.44	0.96	1.41
Olive oil (M)	5.09	3.47	0.96	1.42

Note: unit for all data: mmole/L

Conclusion:

Both oils exert no significant difference in their effects on lipid profiles

Ref: Tony K W Ng et al. (1992). J. Amer. College of Nutrition, 11 (4), 383-90.



ARTICLE TWO

Comparison of palmolein and olive oil: effects on plasma lipids and vitamin E in young adults

Authors:

Naswrin Choudhury, Liling Tan and A Stewart Truswell



Brief:

N = 21

Twenty-one healthy normocholesterolemic young adults, men and women, completed a randomized 30-d/30-d crossover comparison of the effect of palm olein and olive oil on plasma lipids.

Results:	TC	LDL-C	HDL-C	TG
Palm olein	4.65	3.33	0.91	0.97
Virgin olive oil	4.63	3.41	0.80	0.56

Note: unit for all data: mmole/L



In conclusion, this experiment confirmed in Australia the report by Ng et al. from Malaysia that in young adults of normal weight with normal plasma cholesterol concentrations, exchange of virgin olive oil for palmolein as the natural oils at 17% of dietary energy in diets low in cholesterol resulted in identical plasma TC and LDL-C concentrations.

Ref: Naswrin Choudhury, Liling Tan and A Stewart Truswell (1995), Am J Clin Nutr, 61, 1043-51



ARTICLE THREE

Diets high in palmitic acid (16:0), lauric and myristic acids (12:0 + 14:0) or oleic acid (18:1) do not alter postprandial or fasting plasma homocysteine and inflammatory markers in healthy Malaysian adults

Authors:

Phooi Tee Voon, Tony Kock Wai Ng, Verna Kar Mun Lee and Kalanithi Nesaretnam.



Brief:

N = 45

A randomized-crossover intervention with 3 dietary sequences of 5 week each was conducted in 45 healthy subjects. The test fats were palm olein, coconut oil and virgin olive oil.

Results:	TC	LDL-C	HDL-C	TG
Palm olein	4.81	3.20	1.31	0.85
Virgin olive oil	4.65	3.06	1.28	0.84

Note: unit for all data: mmole/L



Conclusion:

The oils did not alter postprandial or fasting plasma concentrations of total homocysteine and selected inflammatory markers.

Ref: Phooi Tee Voon et al. (2011), Am J. Clin. Nutr., 94(6), 1451-7.



ARTICLE FOUR

Effects of palm olein and olive oil on serum lipids in a Chinese population: a randomized, double-blind, cross-over trial

Authors:

Guiju Sun, Hui Xia, Yuexin Yang, Shushu Ma, Haiteng Zhou, Guofang Shu, Shaokang Wang, Xian Yang, Huali Tang, Fengling Wang, Yaqiong He, Rong Ding, Hong Yin, Yanyan Wang, Yang Yang, Hangju Zhu and Ligang Yang



Brief:

N = 100

100 participants were recruited from a spinnery in Yixing City and randomly divided into two groups (palm olein or olive oil) to conduct a 2x2 crossover trial for 5 weeks' intervention with 2-week washout periods.

Results:	TC	LDL-C	HDL-C	TG
Palm olein	4.34	2.48	1.21	0.93
Olive oil	4.36	2.51	1.22	0.94

Note: unit for all data: mmole/L

Conclusion:

Palm olein and olive oil had no recognisably different effects on body fatness or blood lipids in a healthy Chinese population.

Ref: Guiju Sun et al. (2017). Asia Pacific Journal of Clinical Nutrition, doi: 10.6133/apjcn.032017.12



ARTICLE FIVE

Palm oil and cardiovascular disease: a randomized trial of the effects of hybrid palm oil supplementation on human plasma lipid patterns.

Authors:

P Lucci, M Borrero, A Ruiz, D Pacetti, N G Frega, O Diez, M Ojeda, R Gagliardi, La Parra and M Angel



Brief:

N = 77

Seventy seven eligible participants were randomized and assigned to one of two treatments: 25ml hybrid palm oil (HPO) {*E. oleifera* x *E. guineensis*} or 25ml extra virgin olive oil (EVOO) daily for 3 months.

Results:	TC	LDL-C	HDL-C	TG
Hybrid PO	5.01	2.77	1.15	2.38
Extra VOO	4.80	2.47	1.12	2.77

Note: unit for all data: mmole/L



Conclusion:

Our study provides evidence that the consumption of 25 mL per day of crude hybrid *Elaeis oleifera* x *E. guineensis* palm oil for a period of 3 months has similar effects on human plasma lipids to EVOO, which is considered the “gold standard” for heart disease prevention amongst all edible oils.



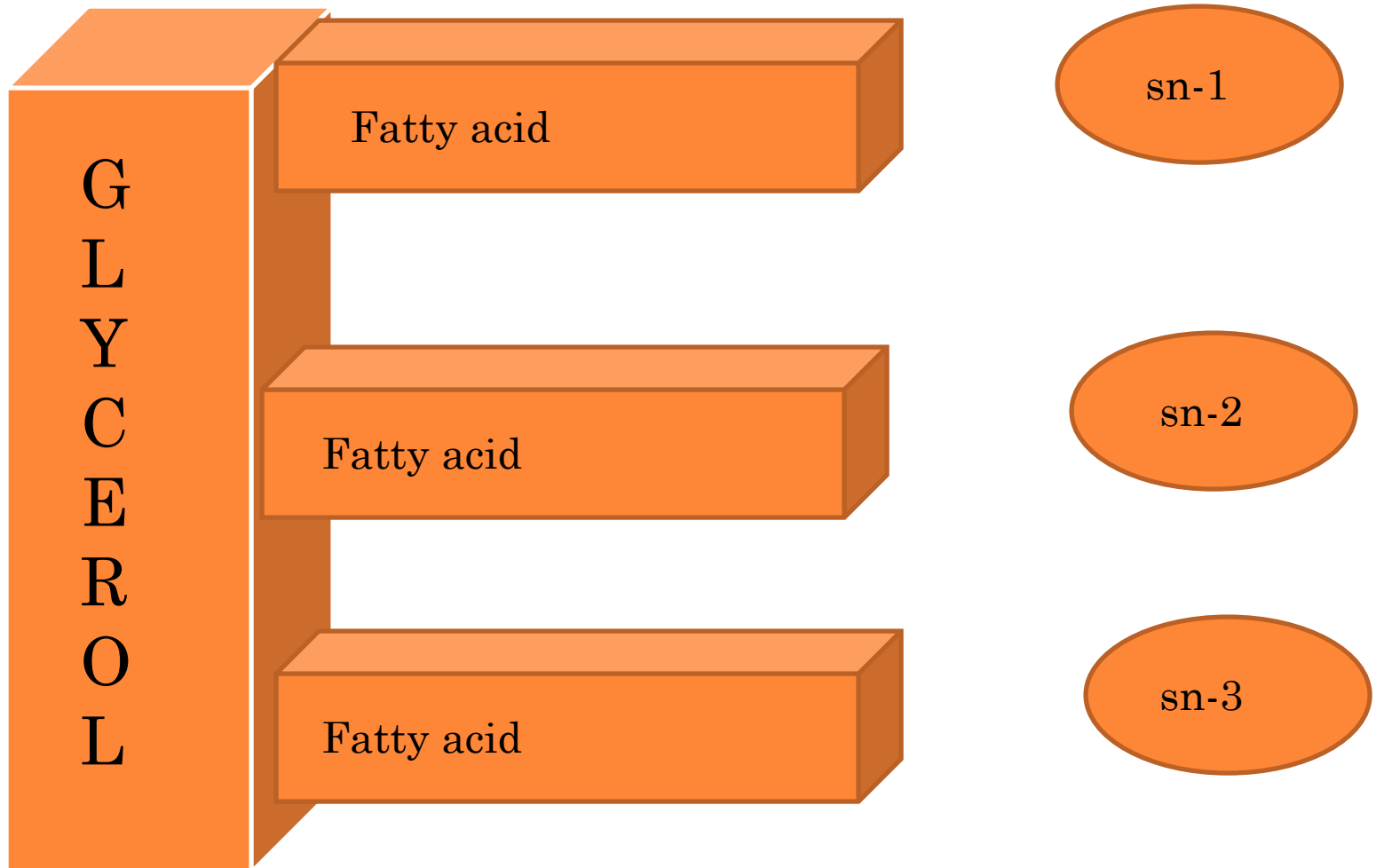
The positive effects of HPO can be attributed to its high percentage of oleic acid (esterified mainly at the sn-2 position of TAGs) as well as to its elevated content of health-promoting bioactive minor components, especially tocotrienols, that probably lead to further benefits on LDL-cholesterol levels and oxidative damage in addition to those resulting from its remarkable glyceridic composition and structure.



Finally, the results obtained in this study provide additional support for the concept that hybrid *Elaeis oleifera* x *E.guineensis* palm oil can be seen as the “tropical equivalent of olive oil”.

Ref:
P Lucci et al. (2016). Food Funct., 7, 347-354





Triacylglycerols (TAG) structure showing the stereospecific numbering of sn -1, -2 and -3

EVIDENCE for sn-2 Hypothesis

Multi-country human trial based on the measurement of the lipid profile induced by the following fats.

	Cocoa Butter	Palm Olein	Olive Oil
sn-1,2,3	67% sat.	40% sat.	20% sat.
sn-2	100% unsat.	90% unsat.	100% unsat.

Results (Australia)

No differences were seen between test fats.



Conclusion:

Consistent with the hypothesis, Palm olein and CB both rich in SFA, but containing primarily unsaturated fatty acid in the sn-2 position of TAG, did not differ from OO with regard to their effects on lipid profiles.

Ref:

Title of Paper presented by Dr Welma Stonehouse at IUNS in October 2017 at Argentina

Authors:

Welma Stonehouse, Bianca Benassi-Evans, Genevieve James-Martin, Mahinda Abeywardena and Manny Noakes.



CONCLUDING REMARKS

Similar study has been conducted and completed in Malaysia and China. Their results are awaiting.

With all these efforts and scientific data published in respectable journals in USA, Europe and Asia Pacific with the conclusion that palm olein is as good as virgin olive oil in term of its effects on parameters related to cardiovascular disease, you have now the information to base your choice. However, more research to probe the unexpected property of palm olein should be conducted





Acknowledgement:

I would like to thank the following for their contribution:

Datuk Dr Choo Yuen May

Mr Yoong Jun Hao

Dr Voon Phooi Tee

Ms Yong Xiou Shuang

Ms Mary Low

Ms Penny Pang



THANK YOU.

