

# OMEGA EDIBLE OILS

Kleinhoscheid, 05/04/2018

Georges Mouton MD

[www.gmouton.com](http://www.gmouton.com)

Ω 3



**Actinidia chinensis**

# Kiwi seed oil

63% LNA ( $\Omega 3$ ) - 16% LA ( $\Omega 6$ )

- *Actinidia chinensis*
- The richest of all in alpha-linolenic acid (18:3  $\Omega 3$ )
- Even better for supplying  $\Omega 3$  than flaxseed and perilla oils



*Salvia hispanica*, foliis ovatis, petiolis utrinque mucronatis. Spicis imbricatis, calycibus trifidis. Koch, orig. t. 2. — Lin. Sp. Plant. 37. — Bot. Chia Americana

**Salvia hispanica**

# Chia seed oil

60% LNA ( $\Omega 3$ ) - 20% LA ( $\Omega 6$ )

- *Salvia hispanica*
- Extremely rich in alpha-linolenic acid (18:3  $\Omega 3$ )
- Provides huge amounts of  $\Omega 3$ , thus its increasing popularity for skin care



## **Effect of dietary alpha-linolenic fatty acid derived from chia when fed as ground seed, whole seed and oil on lipid content and fatty acid composition of rat plasma.**

Ayerza R Jr, Coates W.

Early data showing the benefits n-3 fatty acids provide in preventing CHD disease were obtained using 20:5n-3 and 22:6n-3 fatty acids derived from fish. Recently, however, it has been shown that reduced risks of CHD and other cardiovascular diseases are found with 18:3n-3 fatty acid as well. Chia significantly ( $p < 0.05$ ) increased the 18:3n-3, 20:5n-3 and 22:6n-3 plasma contents compared to the control diet,



**Linum usitatissimum**

# Flax seed oil

53% LNA ( $\Omega 3$ ) - 13% LA ( $\Omega 6$ )

- *Linum usitatissimum*
- Extremely rich in alpha-linolenic acid (18:3  $\Omega 3$ )
- Fits very well to correct an  $\Omega 3$  deficit during a few months



## **[Biological activity of linseed oil as the source of omega-3 alpha-linolenic acid]**

[Article in Russian]

**Ipatova OM, Prozorovskaia NN, Baranova VS, Guseva DA.**

**Flax seed oil** is the most abundant plant source of omega-3 fatty acid, **alpha-linolenic acid**. Ingestion of flaxseed oil may alter the generation of eicosanoids, procoagulant activity and other membrane-dependent responses and exert anti-allergic, anti-atherosclerotic, anti-arrhythmic effects. Beneficial effects of flaxseed oil have been shown in prevention and management of cardiovascular disease.



***Perilla frutescens***

# Perilla oil

57% LNA ( $\Omega 3$ ) - 17% LA ( $\Omega 6$ )

- *Perilla frutescens*
- Extremely rich in alpha-linolenic acid (18:3  $\Omega 3$ )
- Fits very well to correct an  $\Omega 3$  deficit during a few months!



**ELSEVIER SCIENCE**  
**FULL-TEXT ARTICLE**

**Suppression of hepatic fatty acid synthase by feeding alpha-linolenic acid rich perilla oil lowers plasma triacylglycerol level in rats.**

**Kim HK, Choi S, Choi H.**

**In conclusion, suppression of fatty acid synthase plays a significant role in the hypolipidemic effects observed in rats fed alpha-linolenic acid rich perilla oil, and these effects were associated with the increase of hepatic microsomal EPA and DHA contents.**



**Plukenetia volubilis**

# Inca-Peanut oil

47% LNA ( $\Omega 3$ ) - 36% LA ( $\Omega 6$ )

- *Plukenetia volubilis*
- Very rich in alpha-linolenic acid (18:3  $\Omega 3$ )
- Almost unknown, not marketed yet, richest oil in essential fatty acids!



# Composition of *Plukenetia volubilis* (Sacha Inchi) oil from Peru

BONDIOLI P. (1) ; DELLA BELLA L. (1) ; RETTKE P. (2)

Authors Affiliations: (1) Stazione Sperimentale Per le Industrie Degli Oli e Dei Grassi, Milano, ITALIE; (2) University of Applied Sciences, Lubeck, ALLEMAGNE

## Abstract:

In this short paper the oil obtained from the *Plukenetia volubilis* seeds, a plant belonging to the family of Euphorbiaceae, is described. This crop is cultivated in several Countries of South America. For *Plukenetia volubilis* oil numerous classical chemical parameters were evaluated. The obtained data indicate that this oil can be classified as rich in **alpha linolenic acid** (> 50 %). For the commercial development of this product all available precautions must be taken to avoid or to slow down the oxidative degradation.

Journal Title: Rivista Italiana delle Sostanze Grasse (Riv. Ital. Sostanze Grasse) 2006, vol. 83, no3, pp. 120-123 (4 ref.).



**Camelina sativa**

# False flax oil

38% LNA ( $\Omega 3$ ) - 17% LA ( $\Omega 6$ )

- *Camelina sativa*
- Quite rich in alpha-linolenic acid (18:3  $\Omega 3$ )
- Belongs, as rape, to the *Brassicacea* family



**ELSEVIER SCIENCE**  
**FULL-TEXT ARTICLE**

## **Effect of alpha-linolenic acid-rich *Camelina sativa* oil on serum fatty acid composition and serum lipids in hypercholesterolemic subjects.**

**Karvonen HM, Aro A, Tapola NS, Salminen I, Uusitupa MI, Sarkkinen ES.**

**In conclusion, camelina oil significantly elevated the proportions of alpha-linolenic acid and its metabolites in serum of mildly or moderately hypercholesterolemic subjects. Camelina oil's serum cholesterol-lowering effect was comparable to that of rapeseed and olive oils.**

Cannabineae.



**Cannabis sativa**

# Hemp seed oil

20% LNA ( $\Omega 3$ ) - 54% LA ( $\Omega 6$ )

- *Cannabis sativa*
- Best oil for long term health (without THC, of course)
- Nature's most perfectly balanced oil ? (Udo Erasmus)



## **Consumption and quantitation of delta9-tetrahydrocannabinol in commercially available hemp seed oil products.**

**Bosy TZ, Cole KA.**

**There has been a recent and significant increase in the use and availability of hemp seed oil products. These products are being marketed as a healthy source of essential omega fatty acids when taken orally.**



**Juglans regia**

# Walnut oil

12% LNA ( $\Omega 3$ ) - 58% LA ( $\Omega 6$ )

- *Juglans regia*
- Very rich in both essential fatty acids (LNA -  $\Omega 3$  et LA -  $\Omega 6$ )
- More than two thirds are represented by the two essential fatty acids !



## **Antihypertriglyceridemic effect of walnut oil.**

**Zibaeenezhad MJ, Rezaiezadeh M, Mowla A, Ayatollahi SM, Panjehshahin MR.**

**Plasma triglyceride concentrations decreased by 19% to 33% of baseline in group A patients.**

**It was concluded that **walnut oil** is a good antihypertriglyceridemic natural remedy and should be further explored in more detail.**



**Brassica napus**

# Rape seed oil

10% LNA ( $\Omega 3$ ) - 40% OA ( $\Omega 9$ )

- *Brassica napus*
- Provides an ideal association of  $\Omega 3$  and  $\Omega 9$  fatty acids
- Fits reasonably well for long term human nutrition!

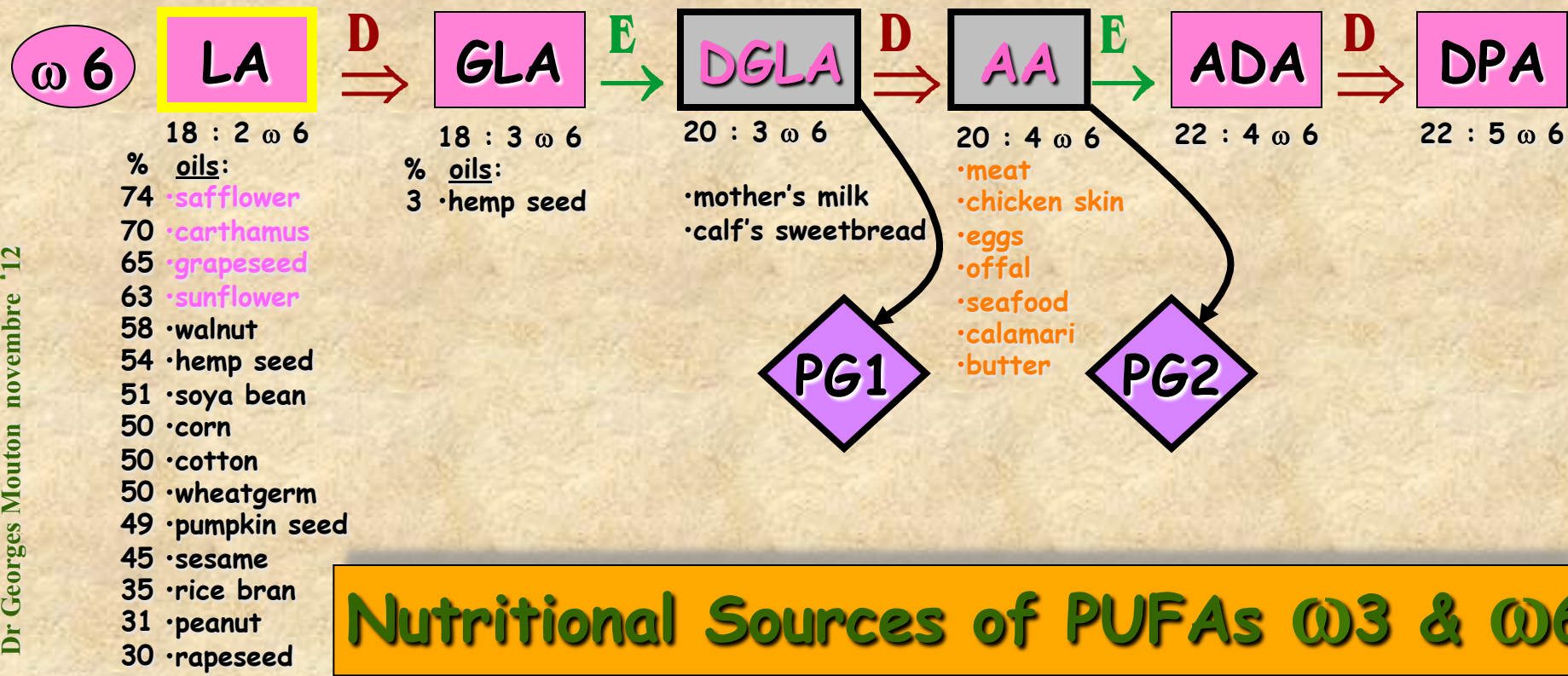
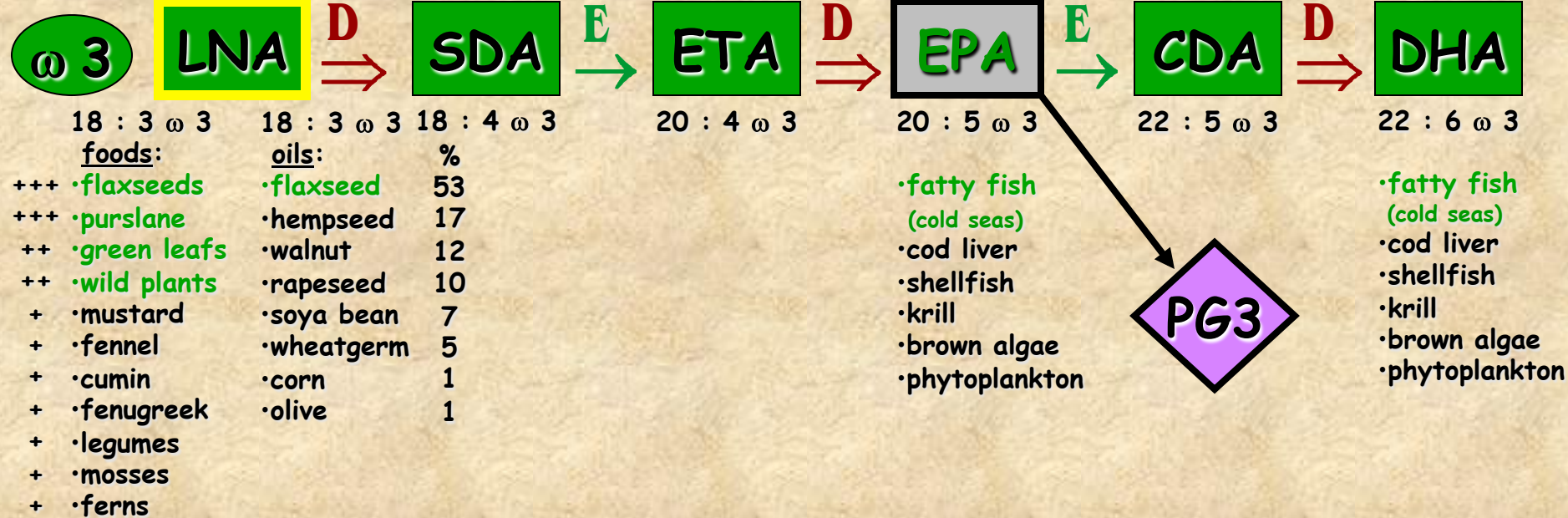


Nutr Metab Cardiovasc Dis. 2004 Jun;14(3):162-9.

## **Alpha-linolenic acid and coronary heart disease.**

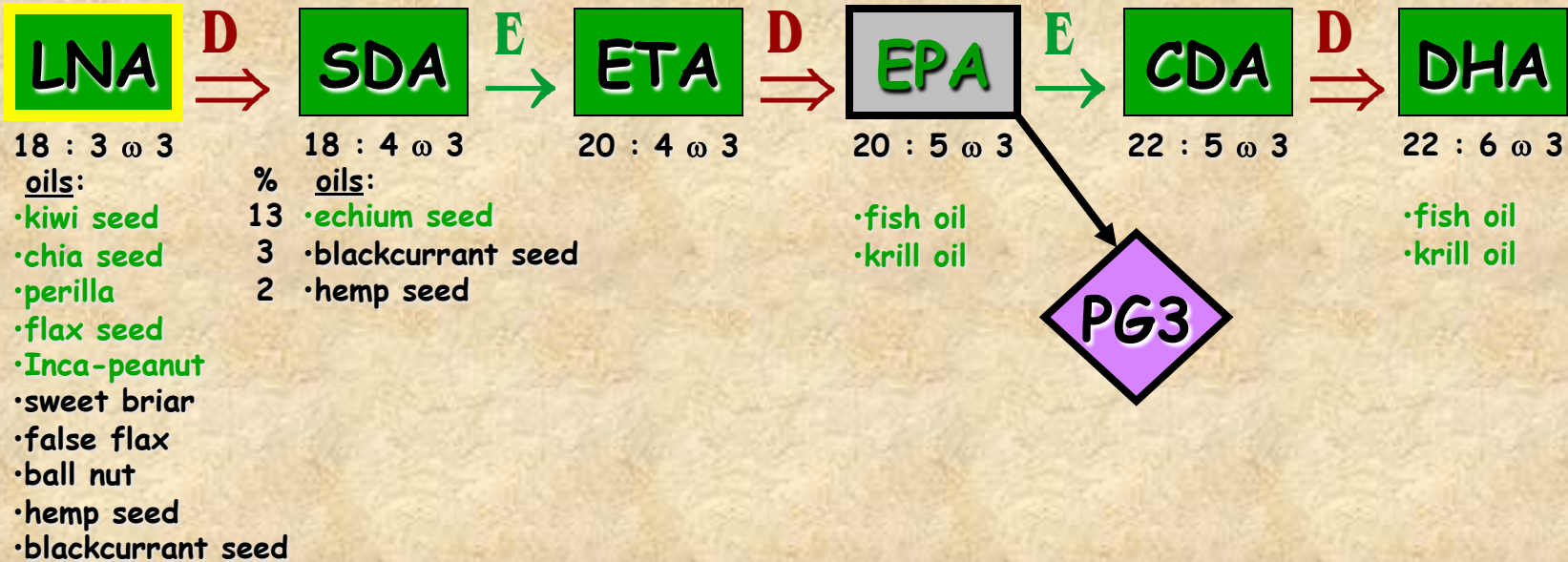
**de Lorgeril M, Salen P.**

The main sources of **alpha-linolenic acid** for the European population should be **canola oil**, nuts, ground linseeds and green leafy vegetables such as purslane. **CONCLUSIONS:** Epidemiological studies and dietary trials in humans suggest that alpha-linolenic acid is a major cardio-protective nutrient.

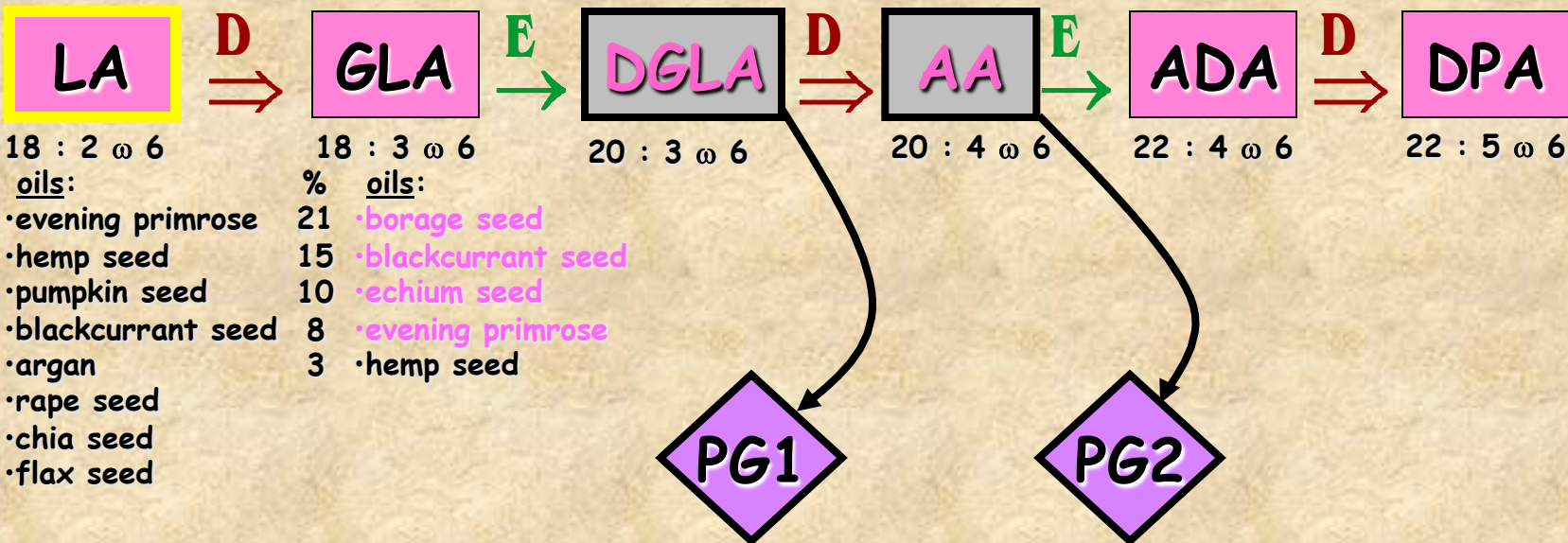


# Nutritional Sources of PUFAs ω3 & ω6

ω 3



ω 6



**Micronutritional Sources of PUFAs ω3 & ω6**

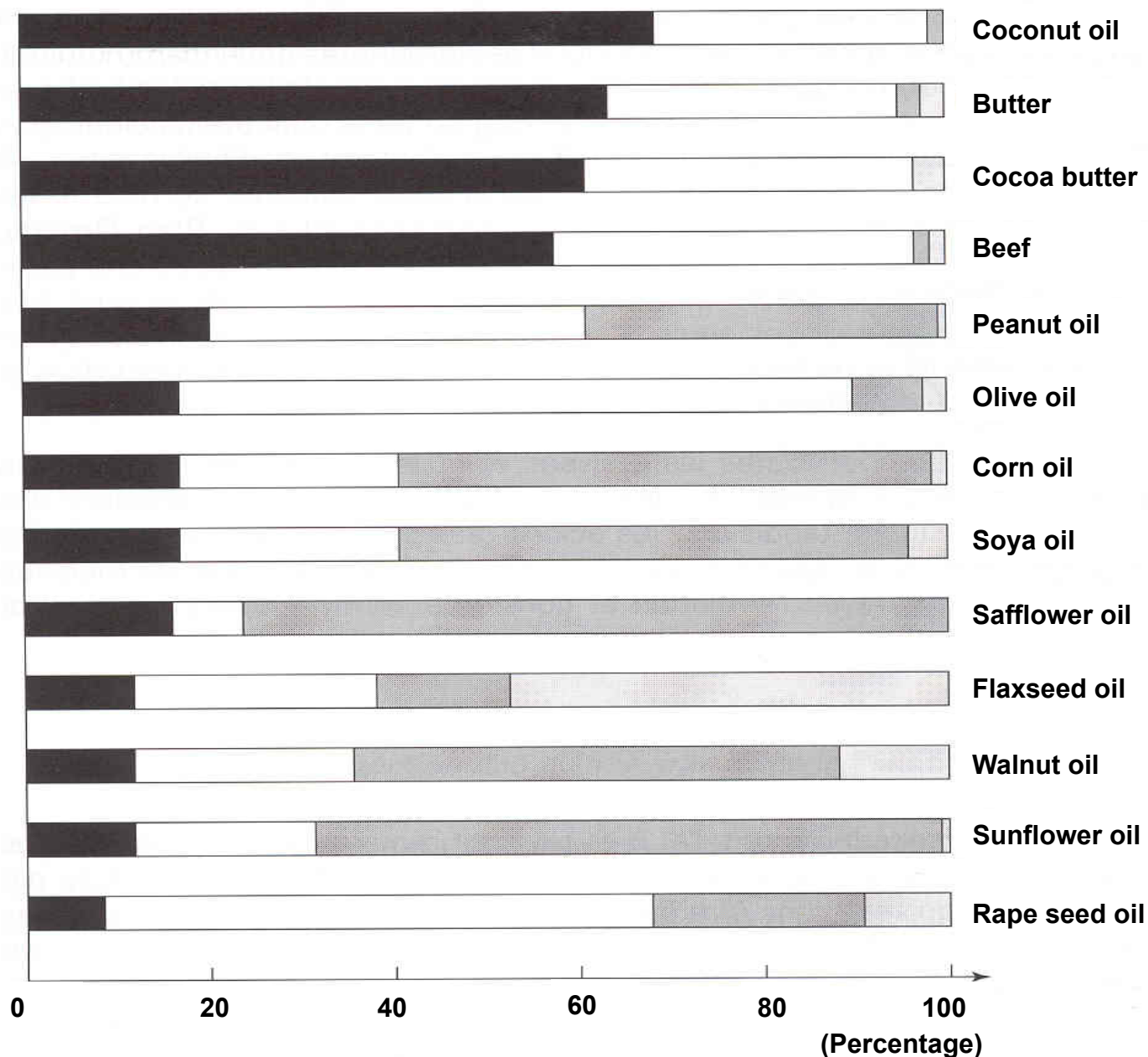


Table representing the fatty acid composition (expressed in percentage of total fats) of usually consumed fats and oils

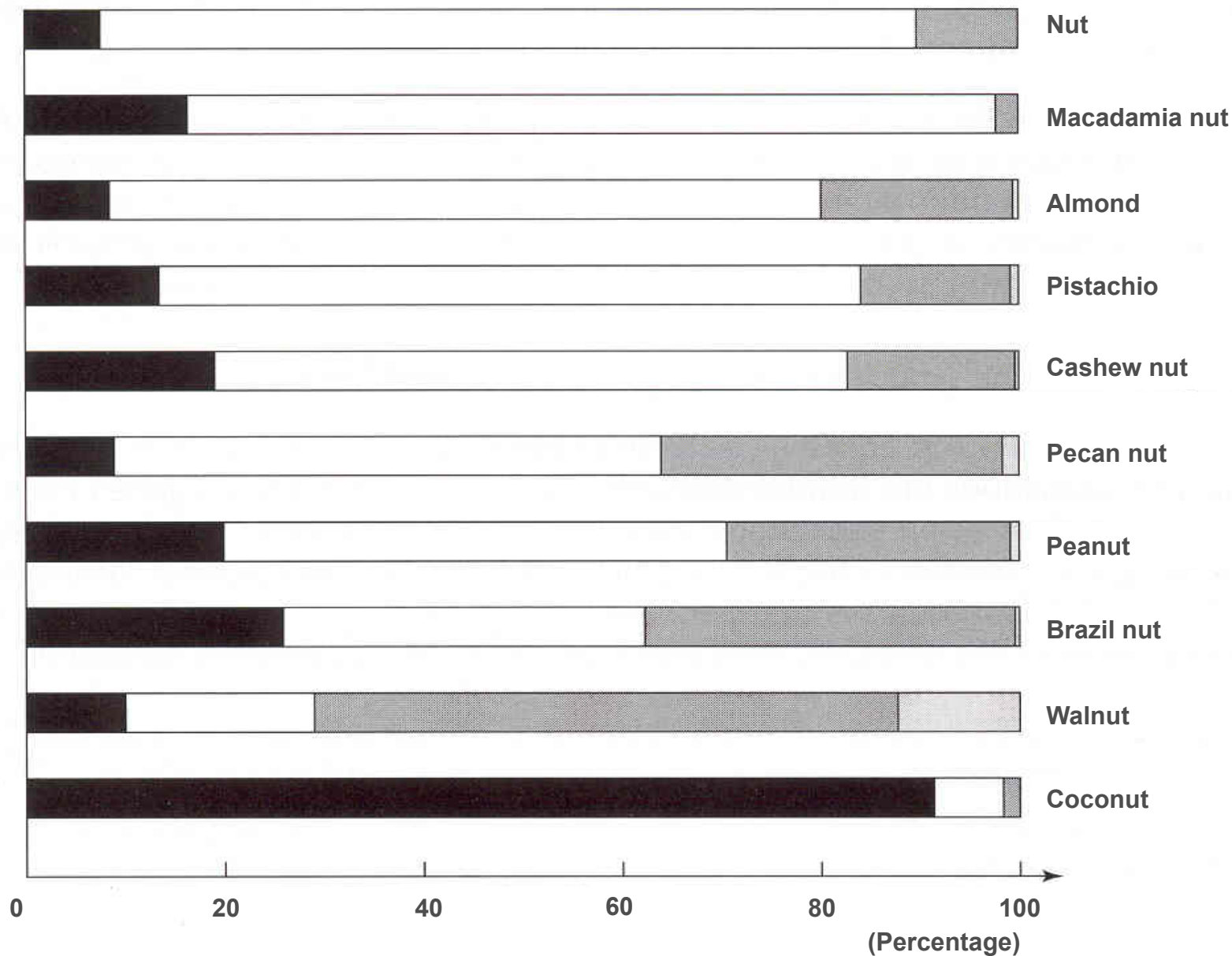


Table representing the fatty acid composition (expressed in percentage of total fats) of some nuts usually consumed in European countries, especially in France

# OMEGA EDIBLE OILS

Kleinhoscheid, 05/04/2018

Georges Mouton MD

[www.gmouton.com](http://www.gmouton.com)