

Effect of Red Palm Oil on Skin Health and Aging

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01 Introduction of Palm Fruit

- Scientific name: *Elaeis guineensis*
- Perennial tropical tree, grows at tropical climates
- Monoecious (bears male and female flowers on the same tree) develop after two years
- Each ripe bunch is commonly known as Fresh Fruit Bunch (FFB)
- Lifespan 25 years generally

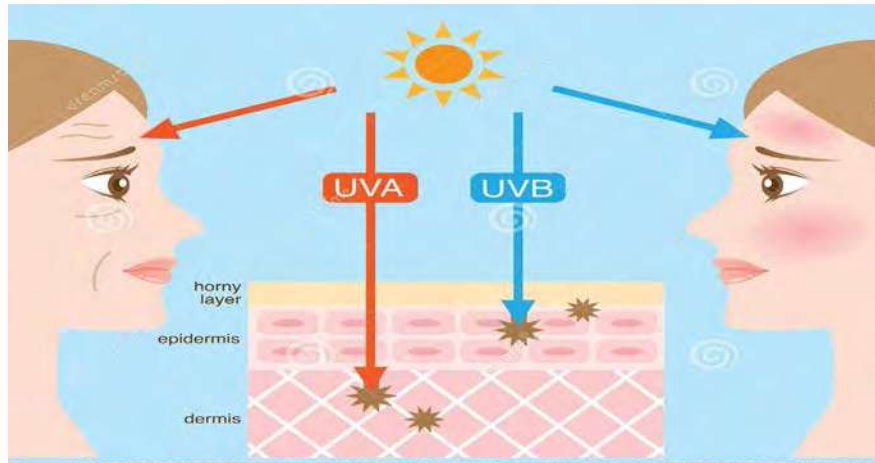




02 Red Palm Oil (RPO)

- One of the world most widely produced edible oil
- Derived its colour from carotenes
- Obtained through mild processing
- Commonly serve as nutritious food and valuable medicine
- Also serves as an important component of personal care products (rich source of phytonutrients, palmitic acid and oleic acid)

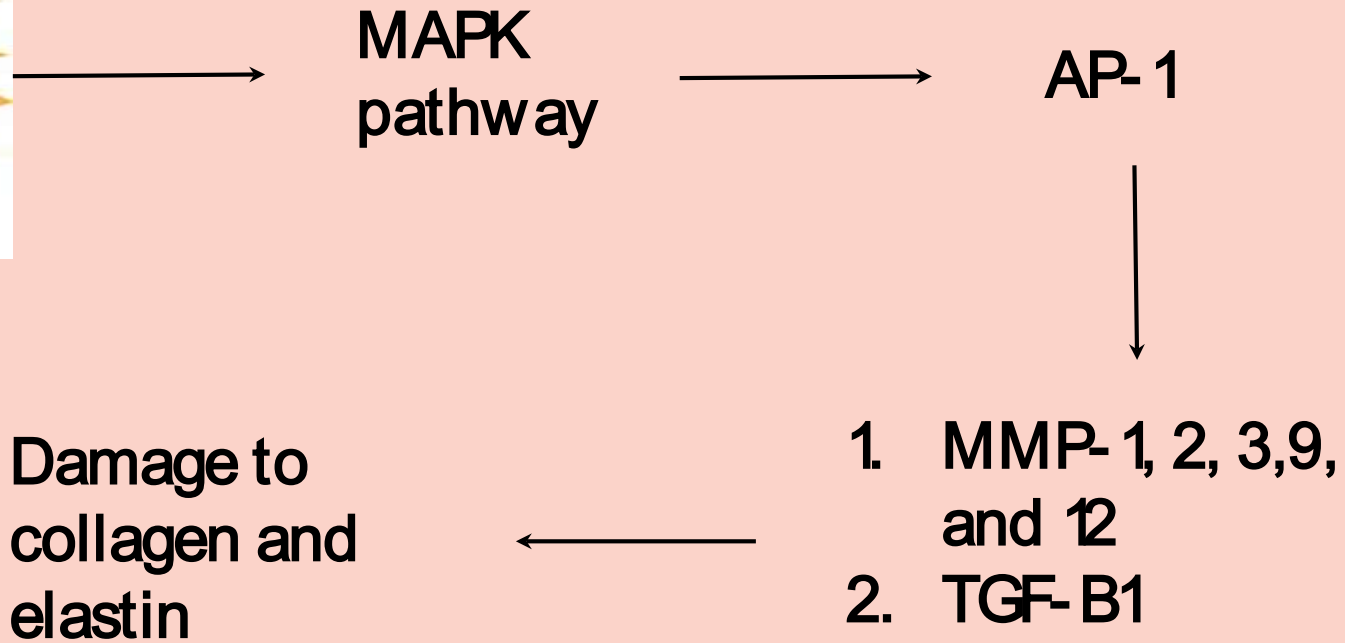
03 Skin health and aging



- Premature skin aging is caused by UV radiation that damage skin connective tissue
- The exposure of UV radiation initiates the production of reactive oxygen species (ROS) and cellular mechanism that damages skin connective tissue and finally lead to photoaging

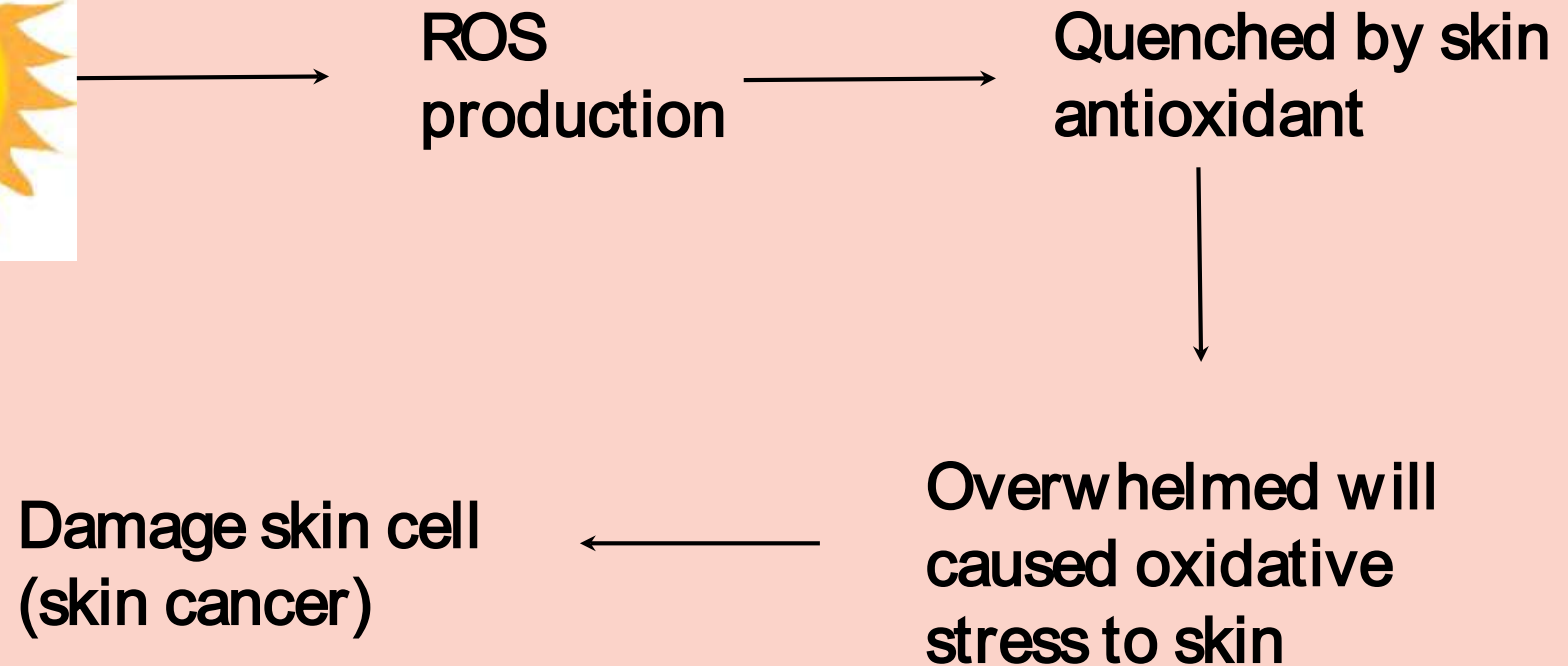


Skin aging pathway- 1





Skin aging pathway- 2



What we can do to delay skin aging?



- Topical application of antioxidant not only helps to introduce the antioxidant compounds, but also to direct chemical interference with free radicals generated and thus interfere with UV- induced gene expression by multiple pathways
- RPO with high carotenoids, vitamin E and phytosterols protect skin from oxidative stress and implement cellular antioxidant level to promote skin health.



- RPO is also high in palmitic acid, oleic acid, and unsaturated fatty acids, all of which have been shown in clinical studies to help maintain and enhance general skin health.

What we can do to delay skin aging?

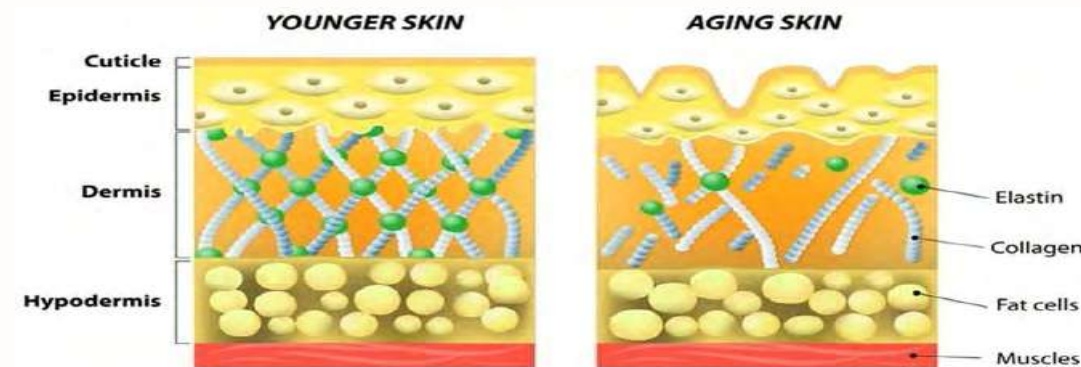
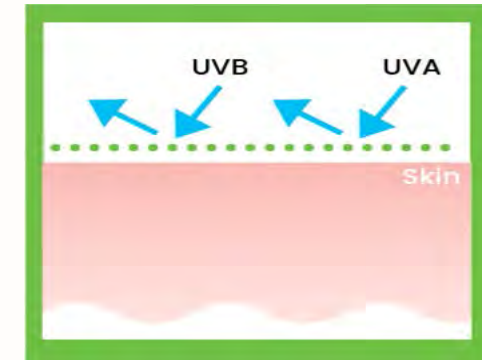


04 Phytonutrients found in RPO

Phytonutrients	Composition
Carotenoids (600-750 ppm)	Phytoene (0.2%), phytofluene (0.6%), β -carotene (41.0%), α -carotene (41.3%), cis- α -carotene (10.2%), f-carotene (0.6%), c-carotene (0.8%), δ -carotene (0.8%), neurosporene (0.2%), β -zeacarotene (1.3%), α -zeacarotene (0.5%), lycopene (1.0%).
Vitamin E (717-863 ppm)	α -tocopherol (19%), α -tocotrienol (29%), c-tocotrienol (41%), δ -tocotrienol (10%).
Phytosterols (325-365 ppm)	Cholesterol (6.6-11.5 ppm), campesterol (76-83 ppm), stigmasterol (59-64 ppm), b-sitosterol (187-218 ppm), unknown (<6 ppm).
Ubiquinone (18-25 ppm)	-

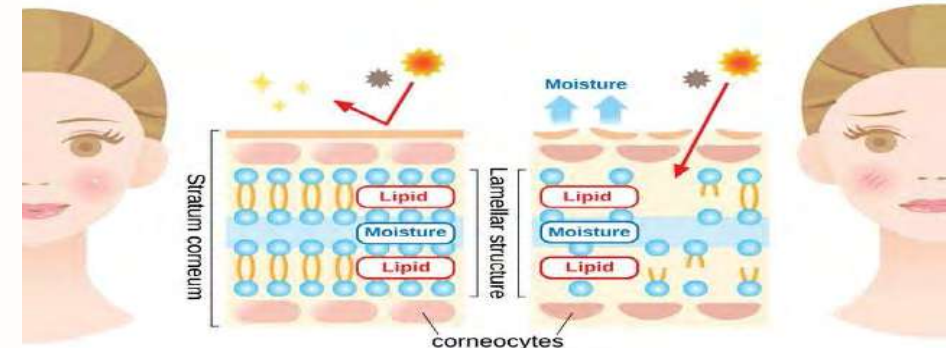
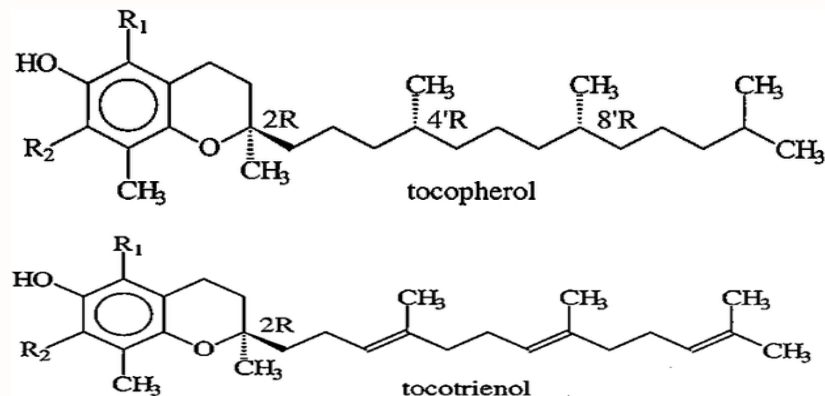
Carotenoid

- ❖ Can accumulate in the human skin through food intake
- ❖ Function as UV filter- protect the skin against photodamage
- ❖ Inhibit of lipid peroxidation
- ❖ Protect the skin against UV induced ROS production and inhibit of UV-induced genes expression that cause premature aging
- ❖ Trigger keratinocyte proliferation, epidermal differentiation and reduction of inflammation
- ❖ Can reduction of the sign of photoaging (wrinkling, pigmentation, dryness, and loss of skin elasticity)



Vitamin E

- ❑ Vitamin E (tocopherols and tocotrienols)- high antioxidant activity
- ❑ Tocopherols able to scavenge the lipid peroxyl radicals to avoid these radicals attack other neighbouring fatty acids chains in the plasma membrane
- ❑ Topical application of α -tocopherol can inhibit the formation of cyclobutane pyrimidine photoproducts in the animal model
- ❑ Application of vitamin E on human keratinocyte cell line was found to demonstrate some degree of protection against cell death after UVB irradiation
- ❑ Act as moisture barrier to the skin that decelerates the aging process in return.





Phytosterol

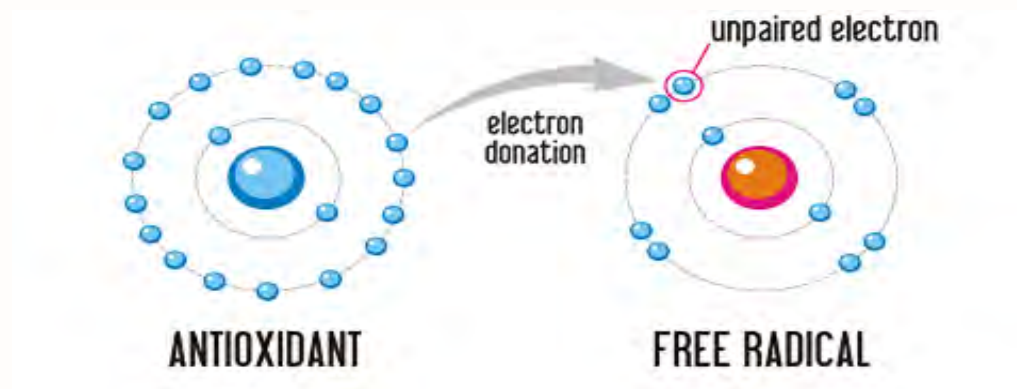
- ❑ Anti-bacterial, anti-fungal, anti-inflammatory, and antioxidant activities
- ❑ Photo-protection and anti-wrinkle property owing to cell division facilitation ability
- ❑ Moisturization and barrier protection
- ❑ Provide nutrition for healthy skin
- ❑ Repair skin cells



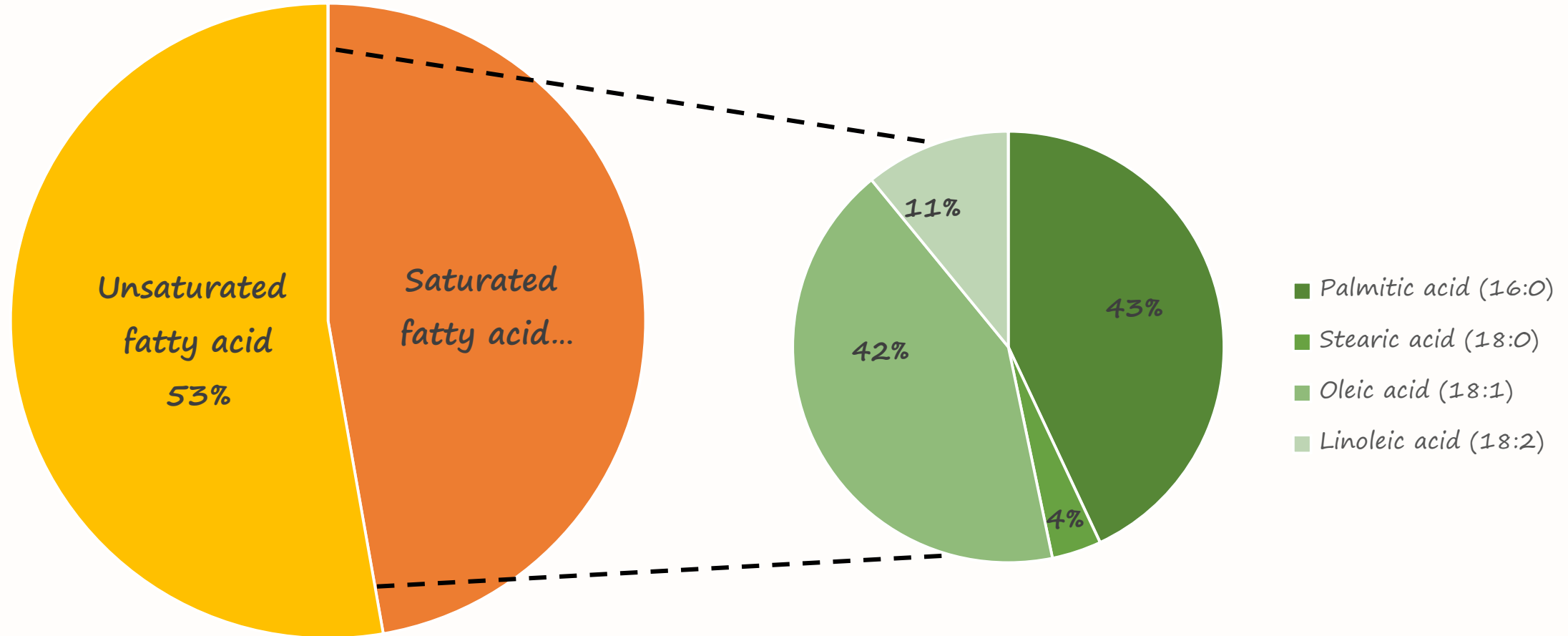


Ubiquinone (Q₁₀)

- ❖ Strong antioxidant compound that can prevent premature aging
- ❖ Increase the formation of elastin
- ❖ Increase expression of type III and IV collagen
- ❖ Can significantly reduces the wrinkles around eyes (6months)



05 Fatty acid composition of RPO

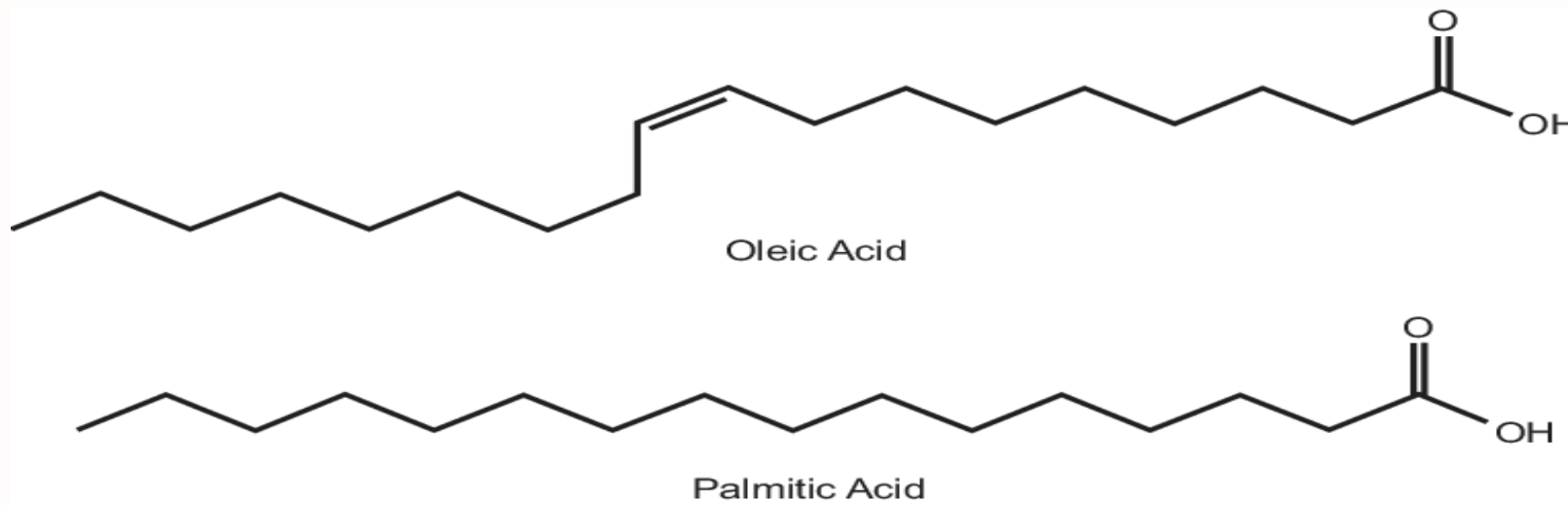


RPO is mainly composed of palmitic acid, oleic acid, linoleic acid and the unsaturated fatty acids



Palmitic and Oleic acid

- ❖ Clinical study on the application of cream rich in palmitic and oleic acid on human subject- 70 % of panelists experienced an improvement on skin texture
- ❖ Demonstrated protective effects against UV- induced cellular damages in human dermal fibroblasts



Unsaturated fatty acid

- ❖ RPO rich in omega 3 and 6
- ❖ Combination of the omega 3 and 6 supplementation exhibits the highest potential in diminishing inflammatory processes- beneficial for the management of inflammatory skin diseases
- ❖ Both omega 3 and 6 can also help in maintain and improve overall skin health



06 Commercialized RPO skin care products



Krismark body cream with red palm oil and shea butter



Juiveika organic red palm oil multi-use face, body, hair



Fleur De Lis golden cream with red palm oil

07 Conclusion

- RPO is endowed with a good mixture of natural antioxidants and together with its balanced composition of the different classes of FAs, makes it safe, stable and versatile edible oil with many positive health and nutritional attributes.
- RPO has several biochemical and nutritional advantages and promising in skin health and antiaging.
- RPO may be applied in cosmetic or pharmaceutical industries for topical formulation development due to its oil rich in antioxidants, especially carotenoids, vitamin E, phytosterols as well as UFAs (mainly omega-3 and omega-6).



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Thank you !!!