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DRY FRACTIONATION

A BOOMING TECHNOLOGY

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Change of physical properties

Animal fat : Beef
Lard
Bone
Skin
Duck
Chicken

Separation into two
or more fractions of
more value

Ex: Palm oil

Improve product
functionality
ex: Milk fat



**GOALS OF
DRY FRACTIONATION
OF FATS (TG)**

Improve nutritional
functionality

Enrichment in omega 3

Ex: fish oil

Concentration of specific TG

Ex: SUS TG from palm oil

Clarification of oils
by dewaxing

Ex: Sunflower oil
Rice bean oil

Improve cold stability
by winterisation

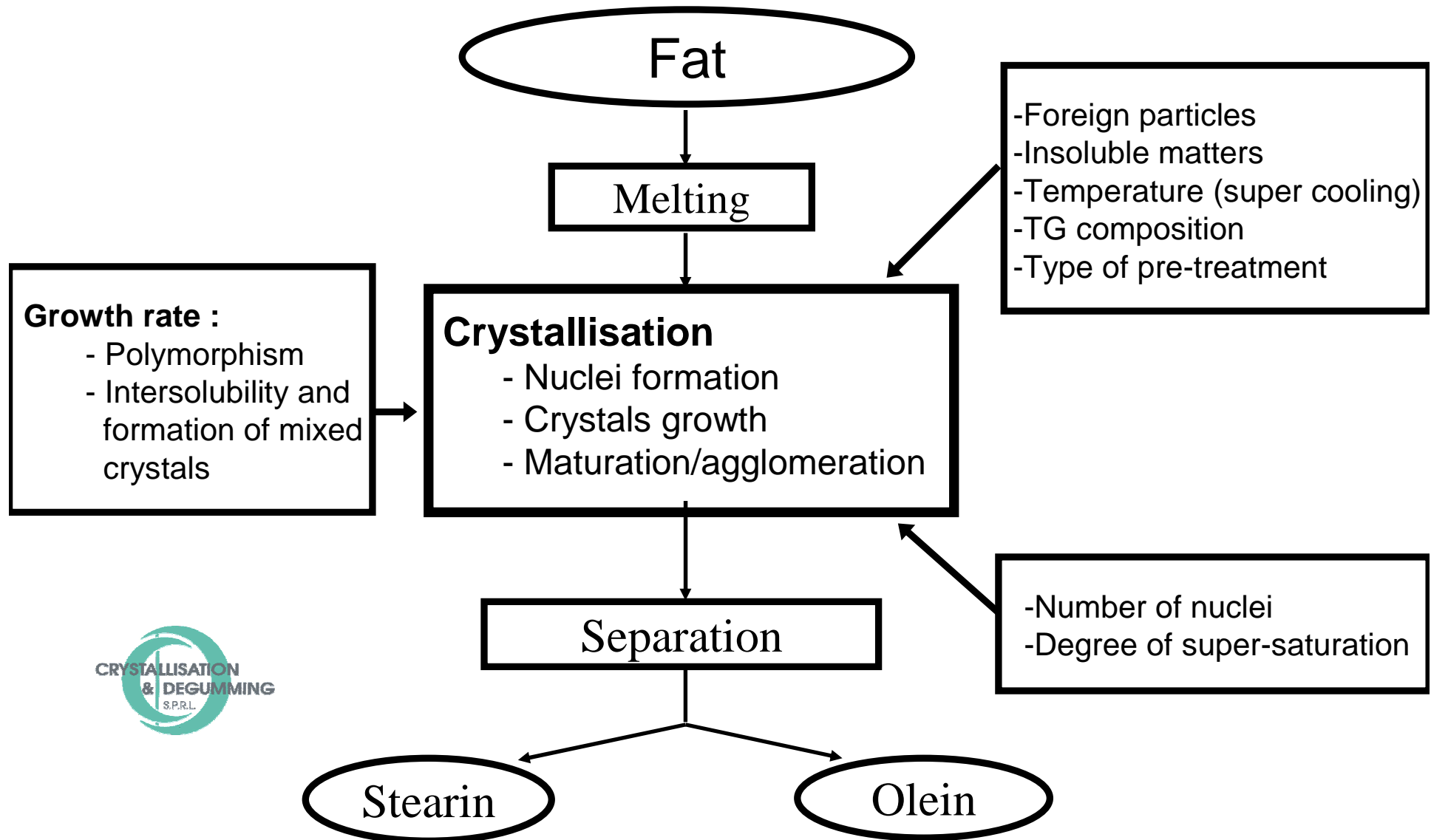
Ex: cotton oil

Improve oxidative stability :

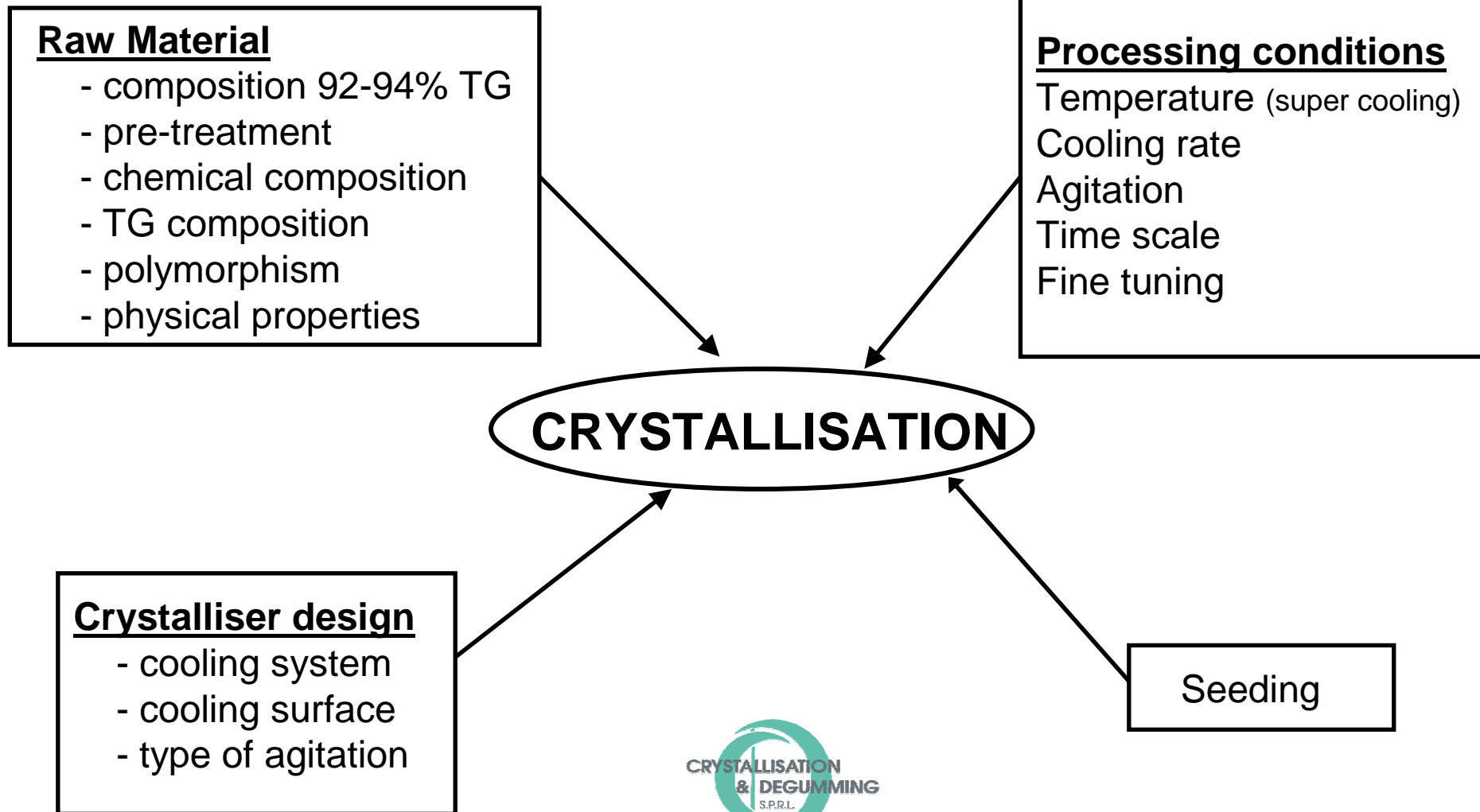
PHSBO

PHRSO

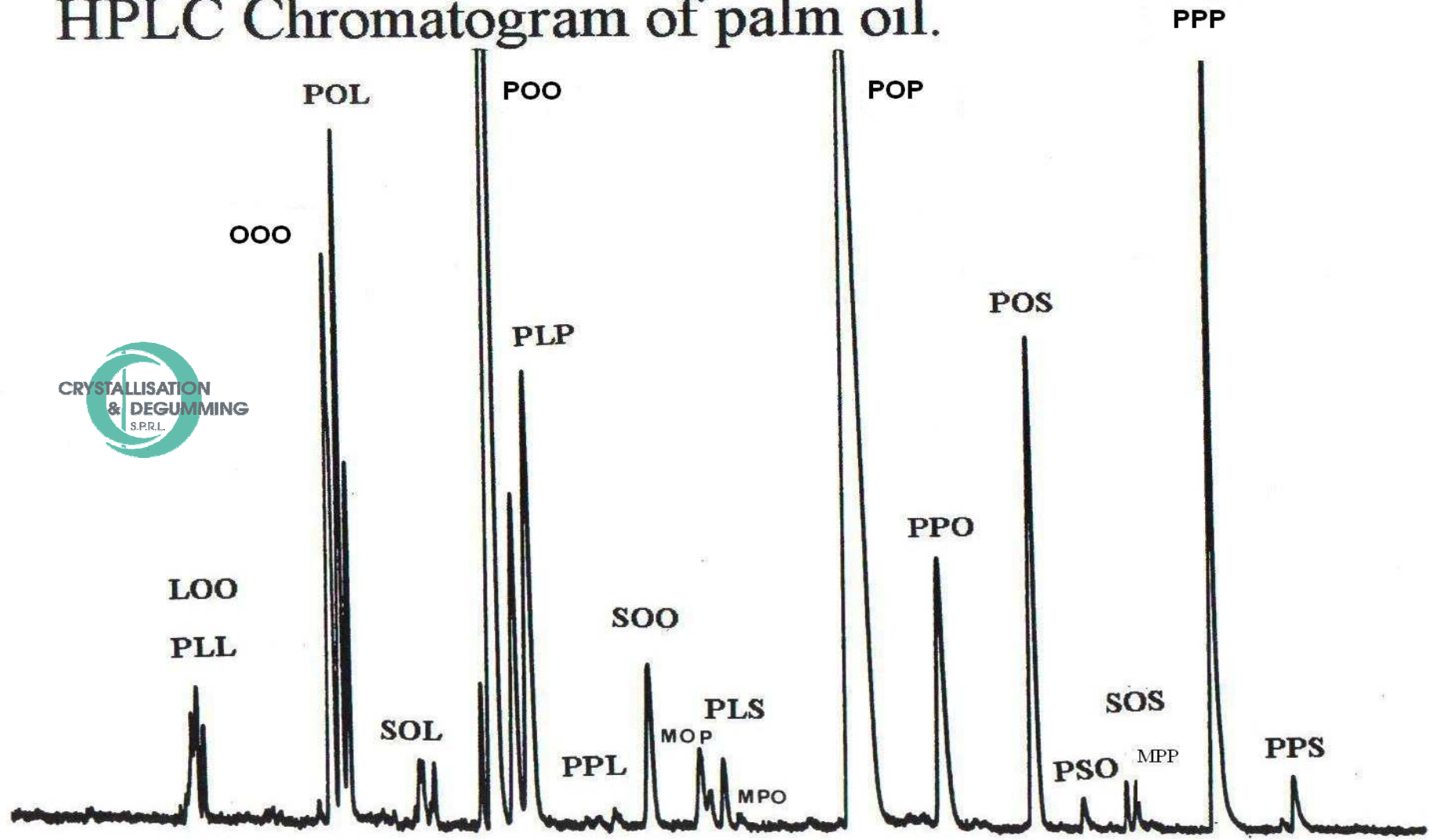
CLASSICAL SCHEME OF DRY FRACTIONATION



Factors affecting the crystallisation of palm oil

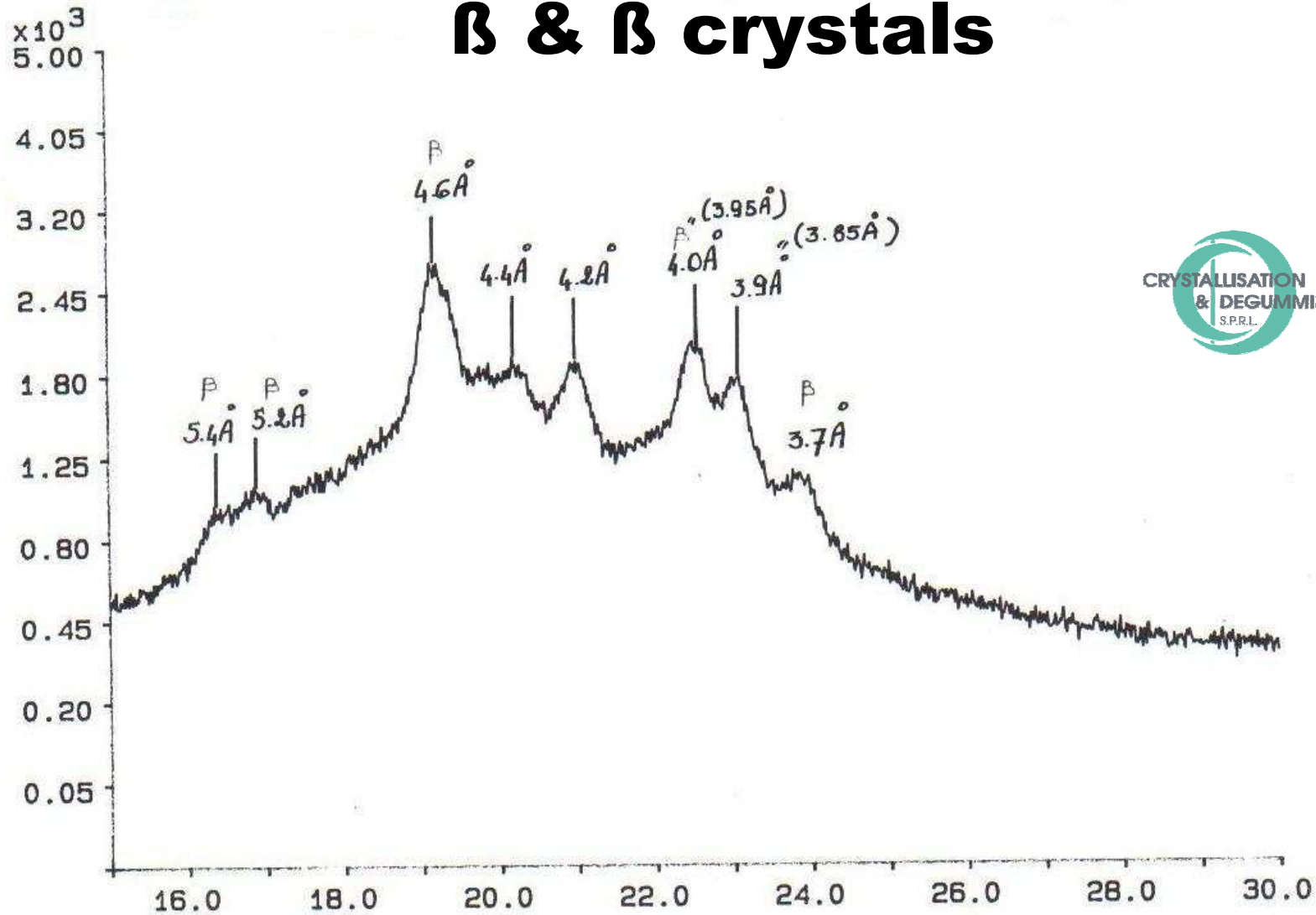


HPLC Chromatogram of palm oil.

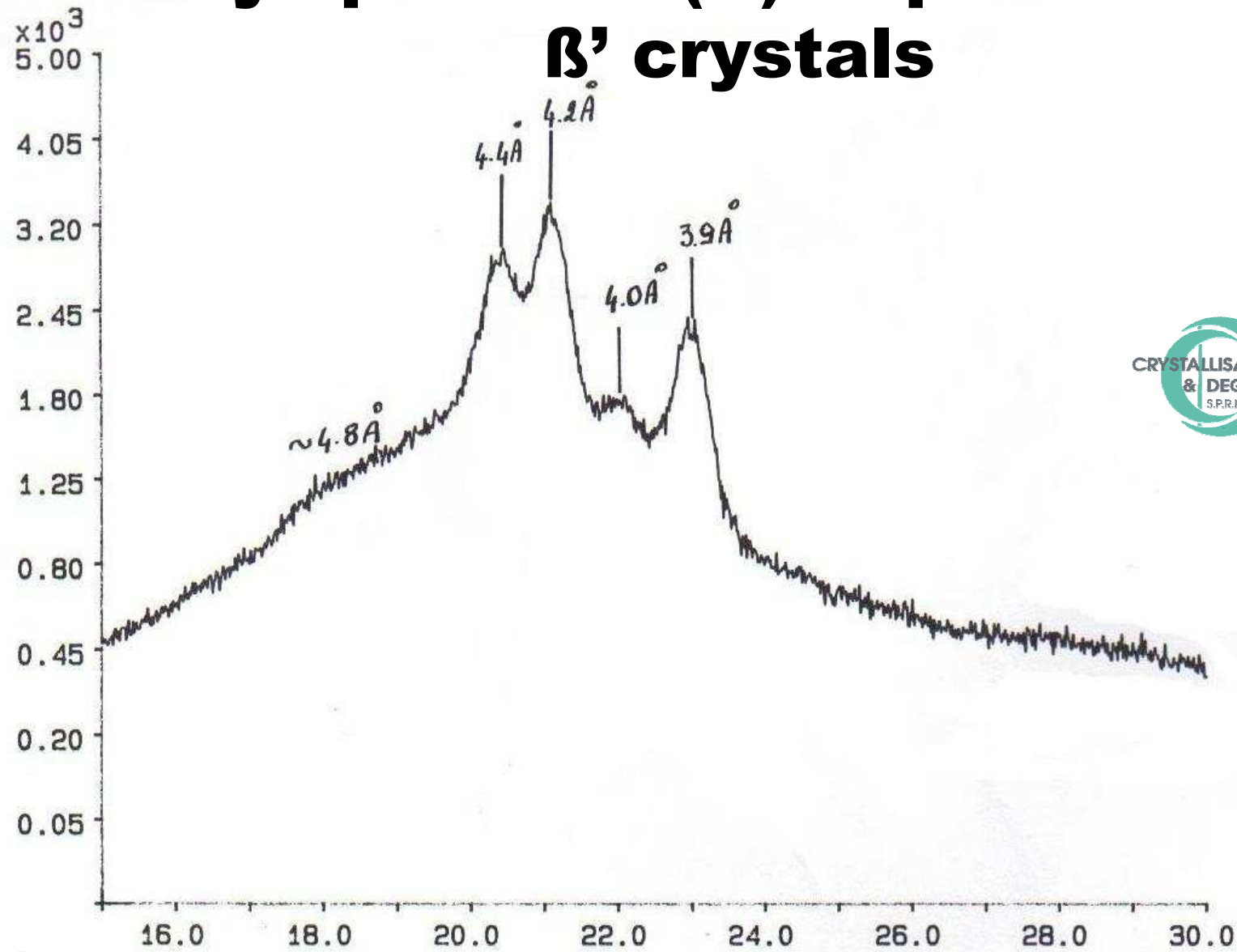


	←		←			←				←		←	
DB	4	3	2			1		0					
M.Pt.	-9	5	15-25°C			35-45		55-70°C					

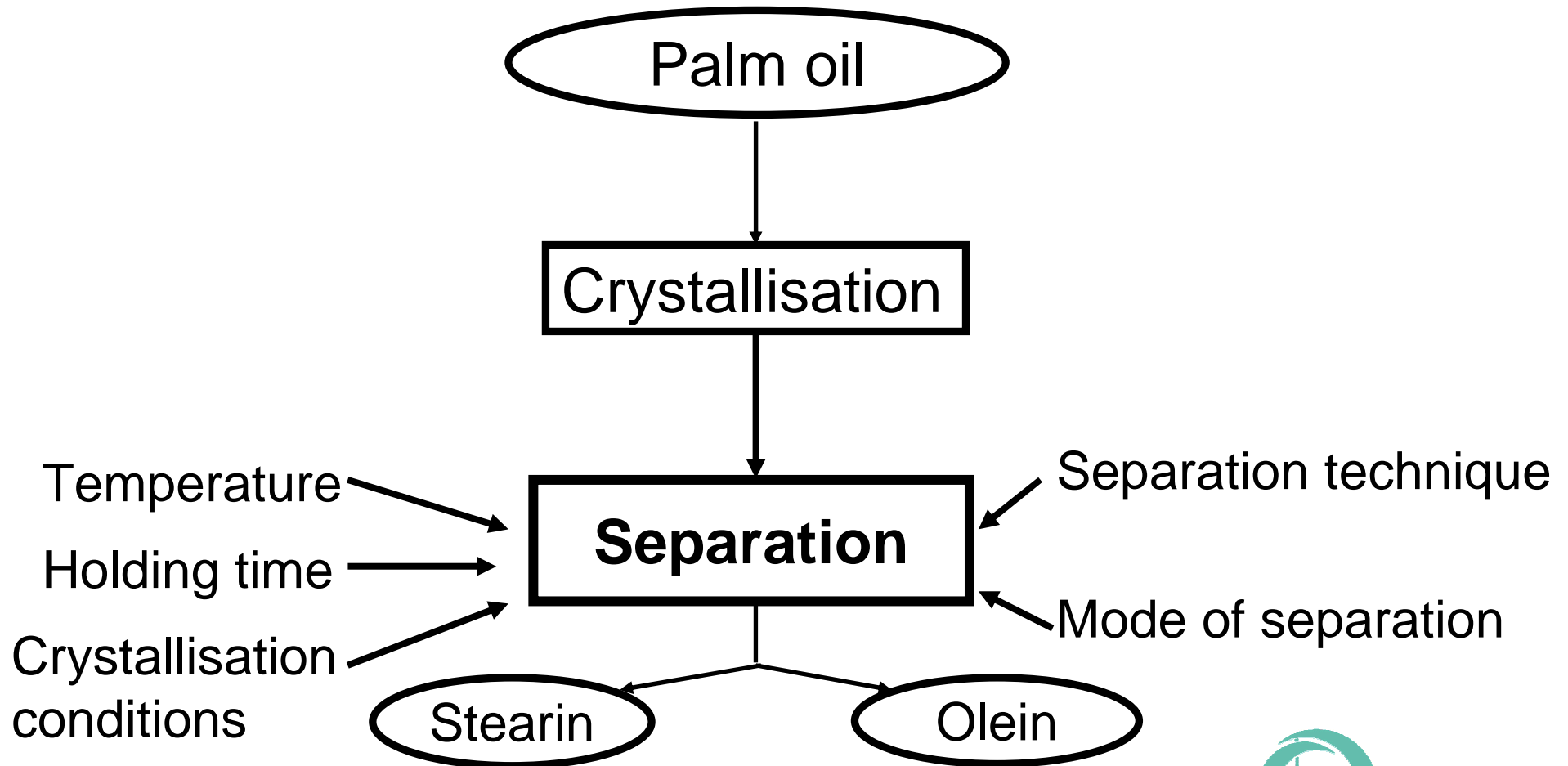
X-Ray spectrum (A) of palm stearin : β & β' crystals



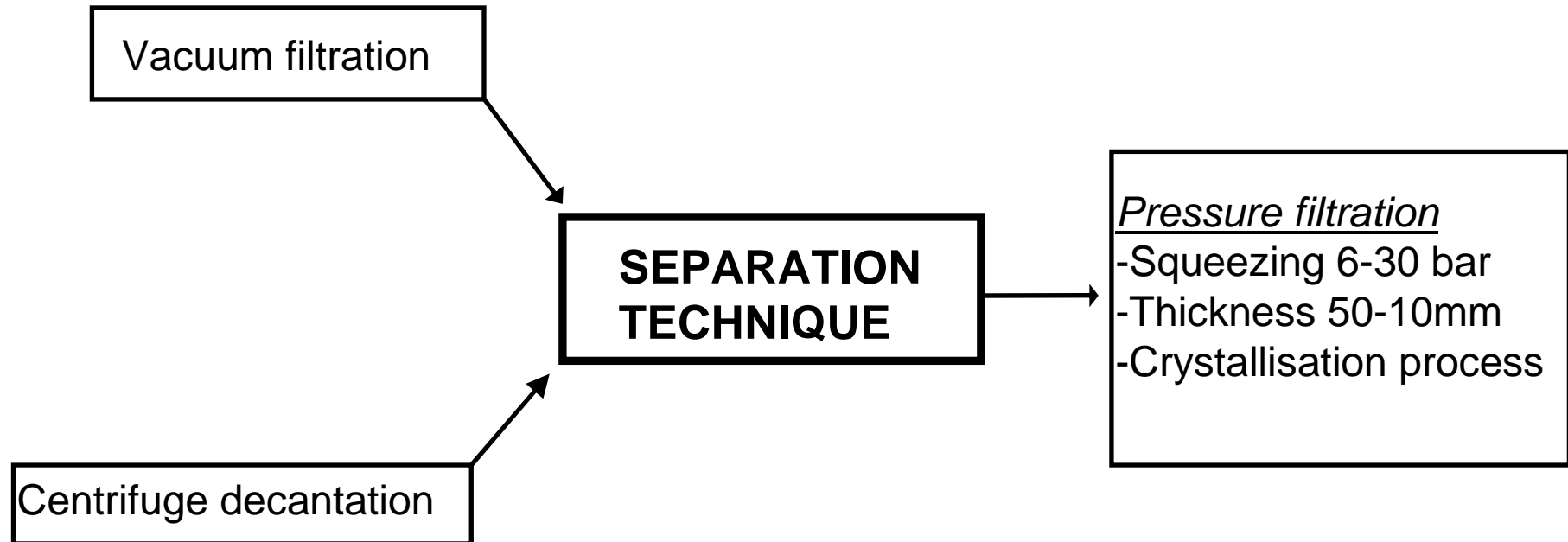
X-Ray spectrum (B) of palm stearin : β' crystals



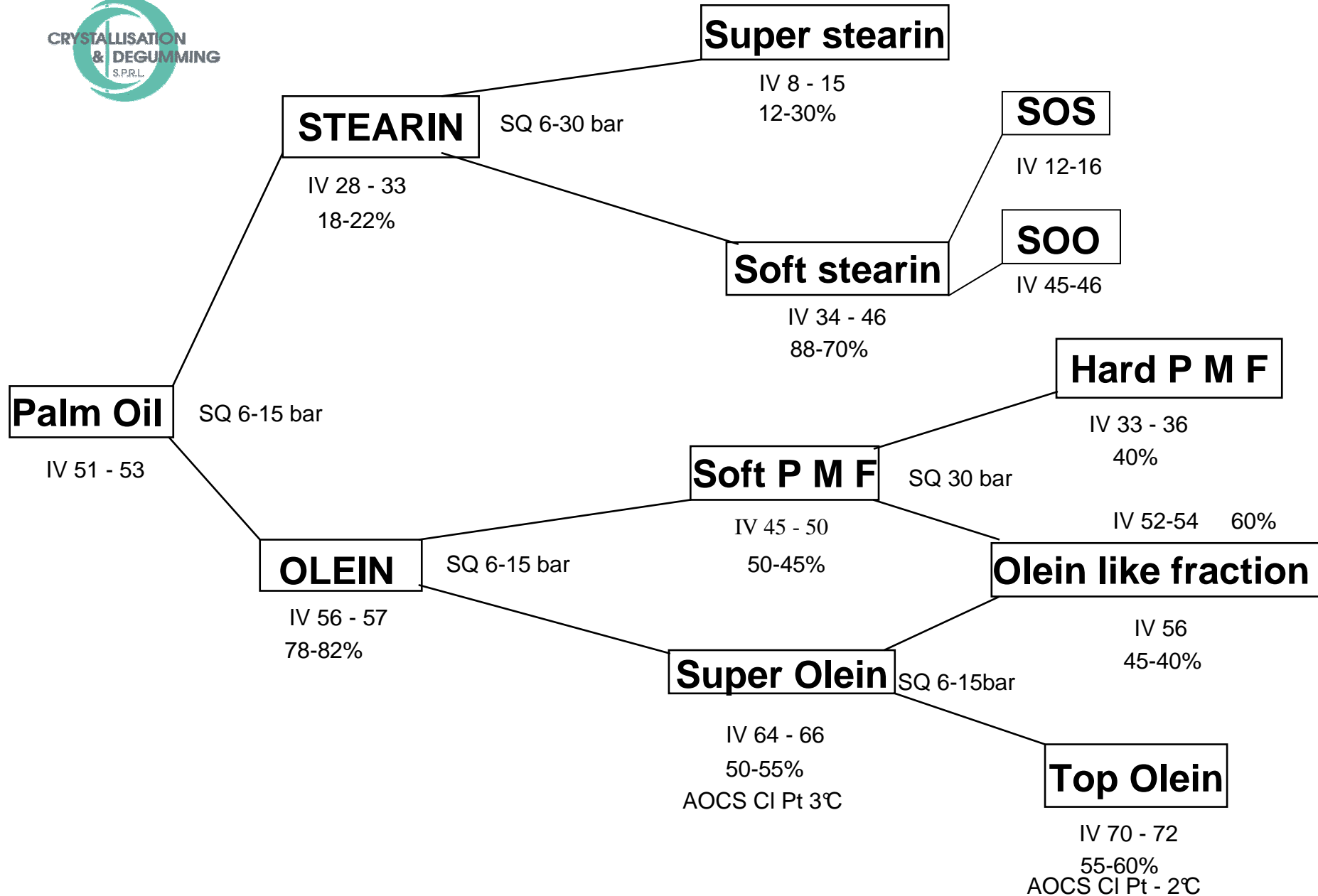
Factors affecting the quality of palm oil fractions



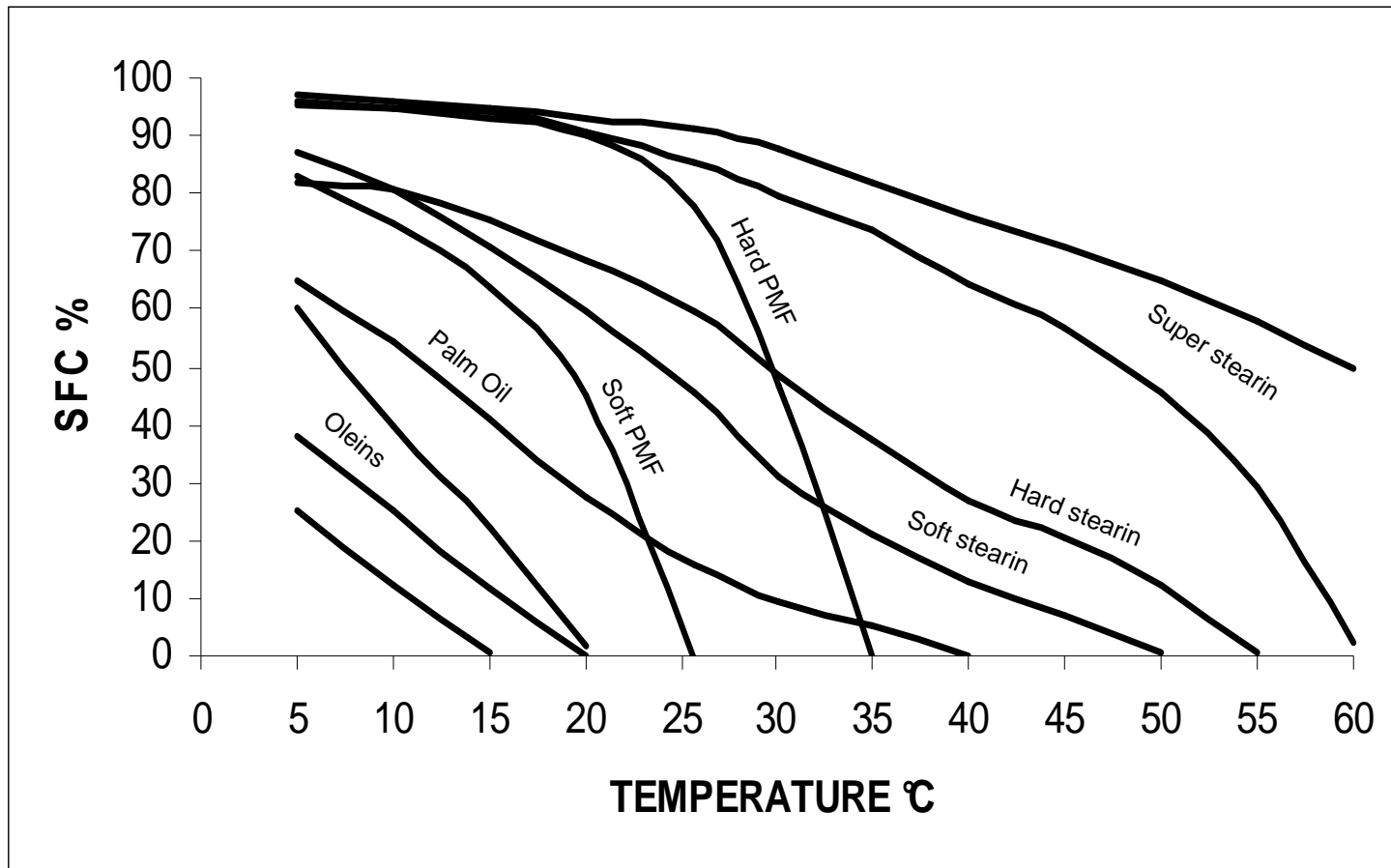
Factors affecting the quality of palm oil fractions



DRY MULTISTAGE FRACTIONATION OF PALM OIL WITH MEMBRANE FILTER PRESS

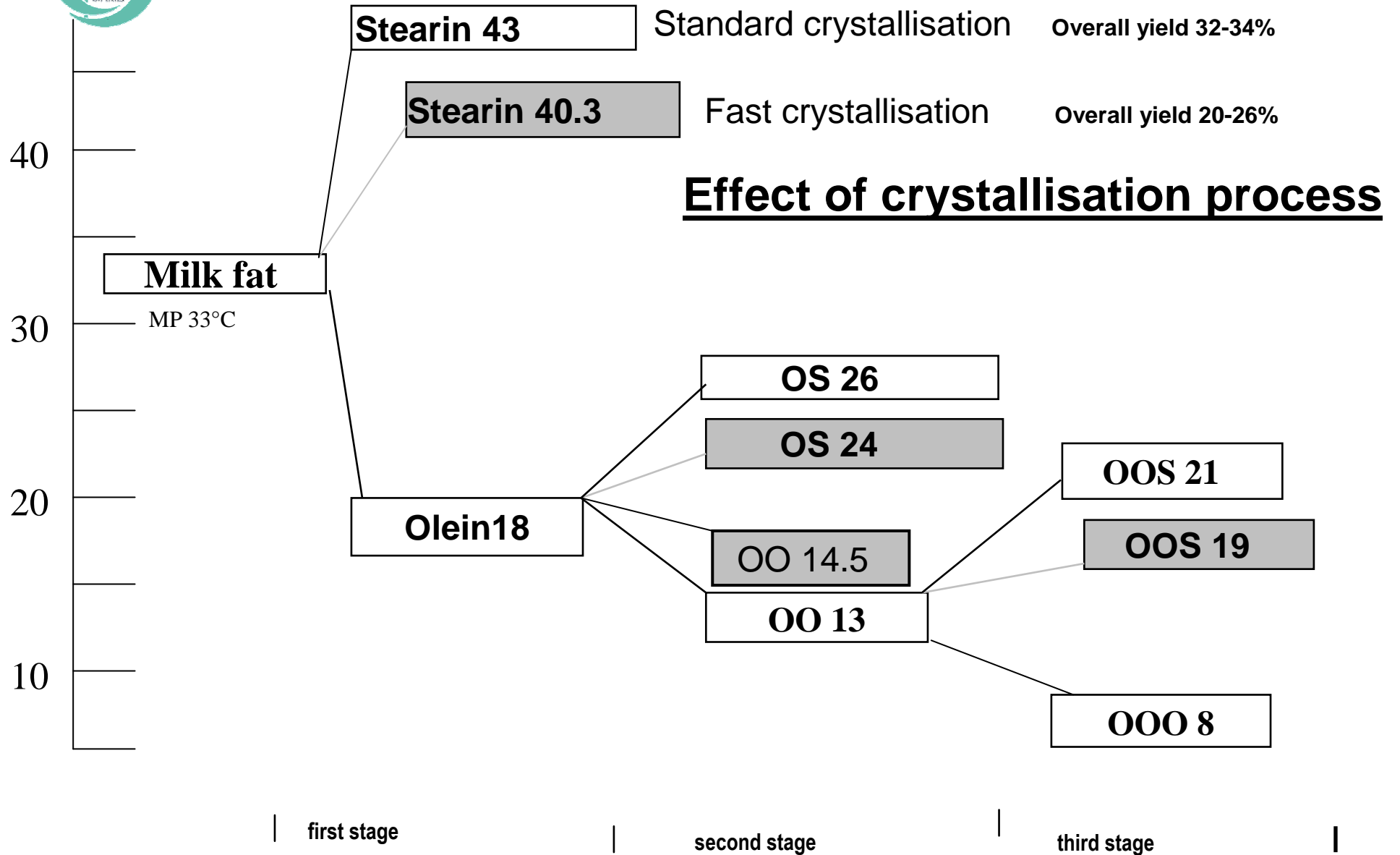


SOLID FAT CONTENT OF PALM OIL FRACTIONS BY NMR



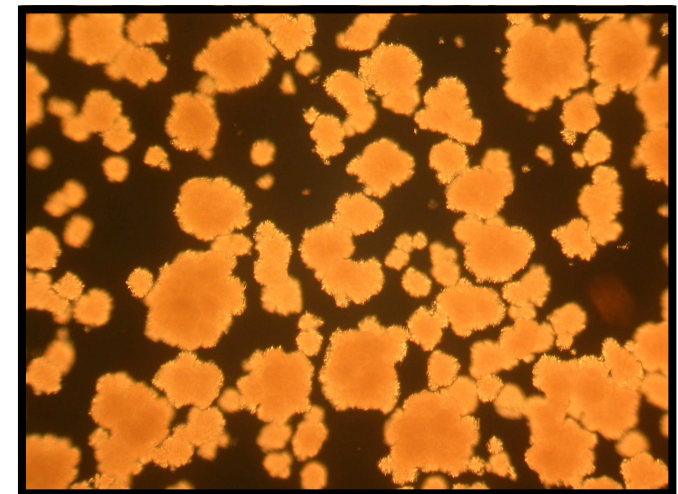
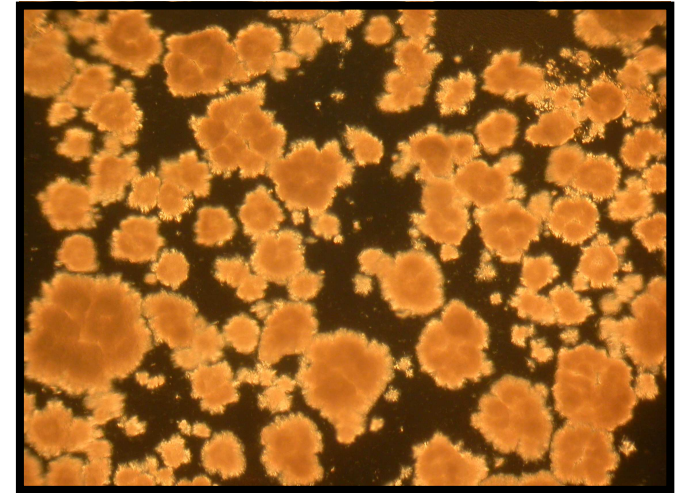
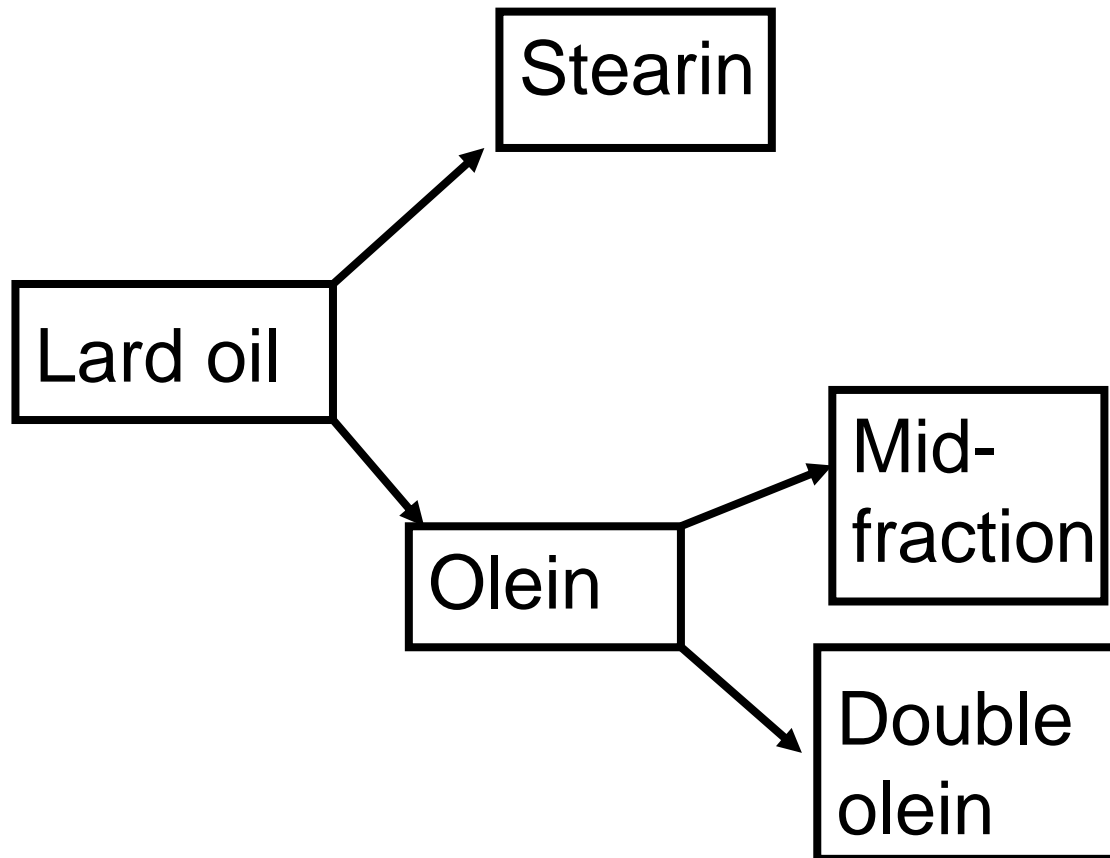


DRY MULTISTAGE FRACTIONATION OF MILK FAT WITH MEMBRANE PRESS FILTER



Ref : Crystallisation & Degumming (industrial results)
Ref : Kellens (SCI 1994)

Dry fractionation of lard oil with membrane press filter



Cl. Pt. 4°C



Traceability (2005)

Functionality problems
and seasonal variations
of MF overcome

open up a lot of new possible
applications

Production with new functionality

Economical

- cheap process
- most economical
modification

**Advantages of dry
fractionation for palm oil**

Natural process

- no additif
- no chemical
- no solvent

**Keeping organoleptic
properties**

Natural taste and flavour

Green process

- Clean process
- Environmently friendly
- no pollution
- no waste

Reversible process

- Purely physical process
- No molecular modification