



# Origin, biosynthesis and characterization of saponins

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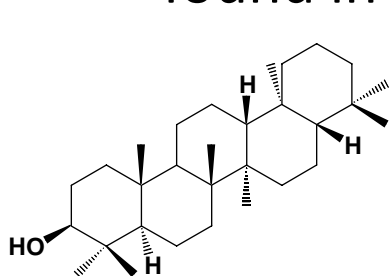
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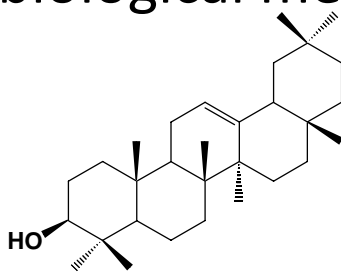
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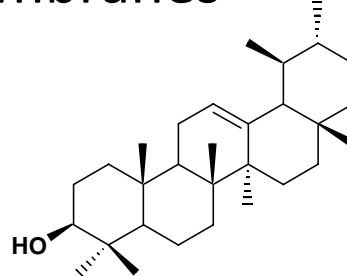
## Main triterpenoidal alcohol leaders found in biological membranes



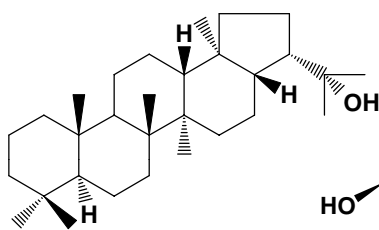
**TETRAHYMANOL**



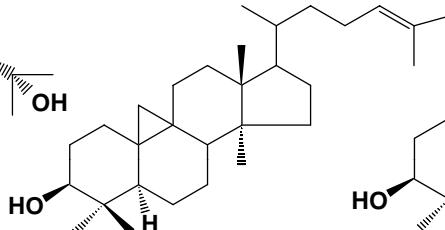
**$\beta$ -AMYRIN**



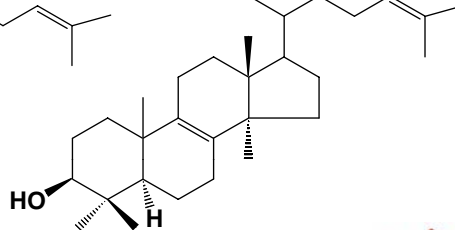
**$\alpha$ -AMYRIN**



**DIPLOPTEROL**



**CYCLOARTENOL**



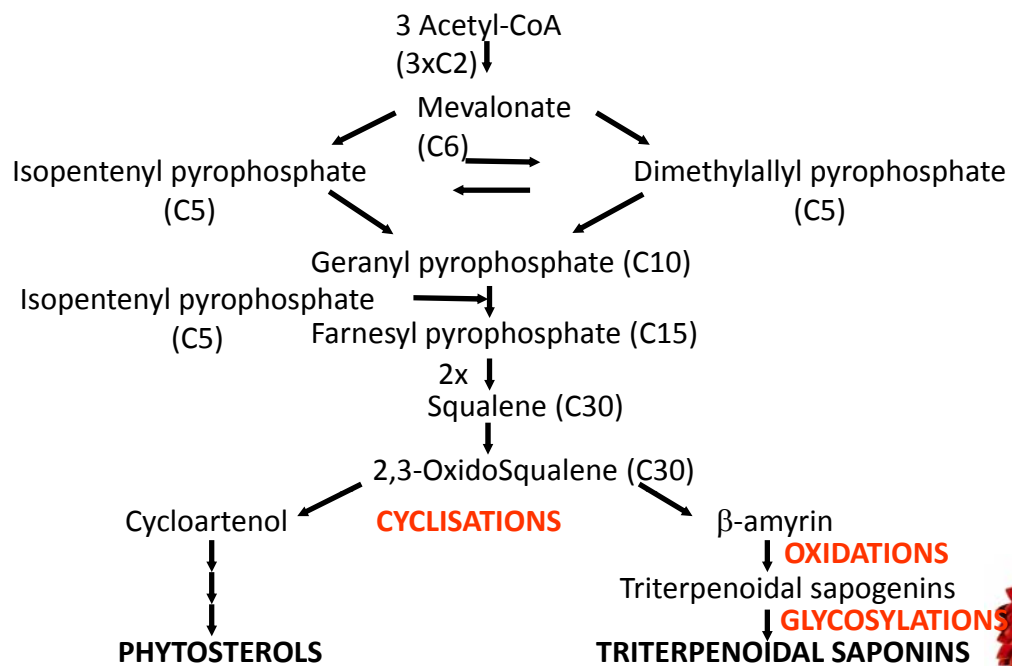
**LANOSTEROL**



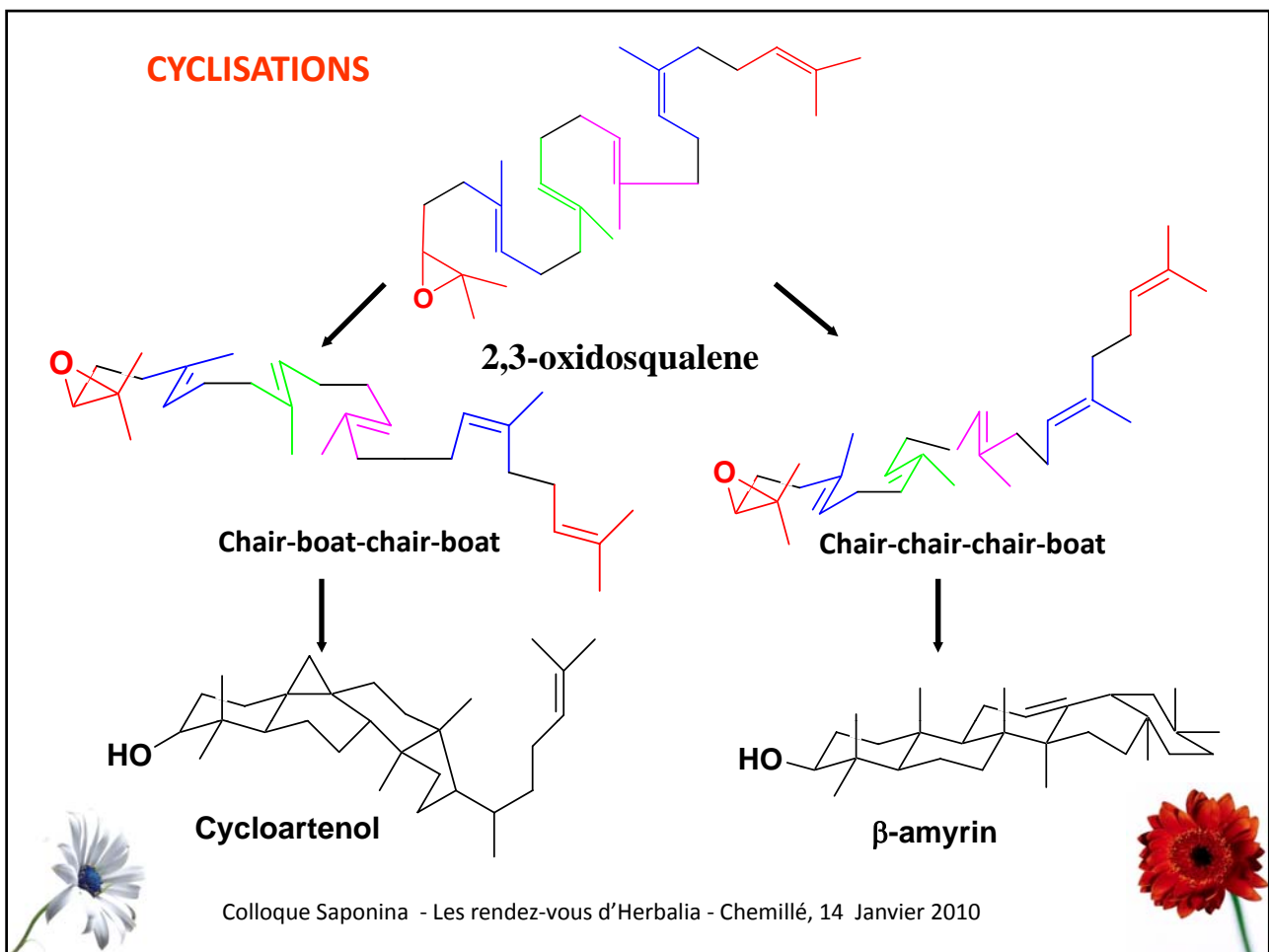
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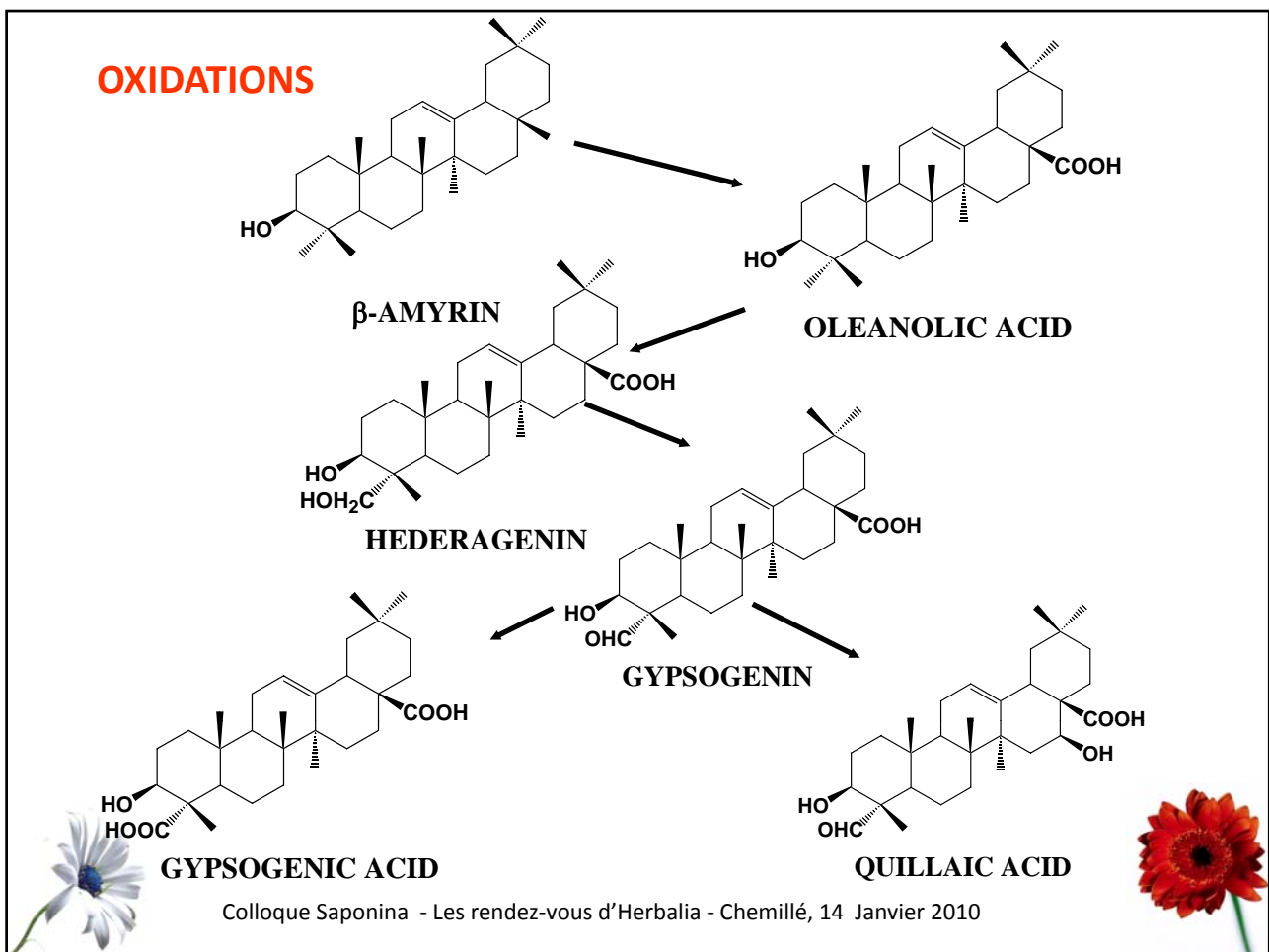


## Biosynthetic pathway of the phytosterols and the triterpenoidal saponins



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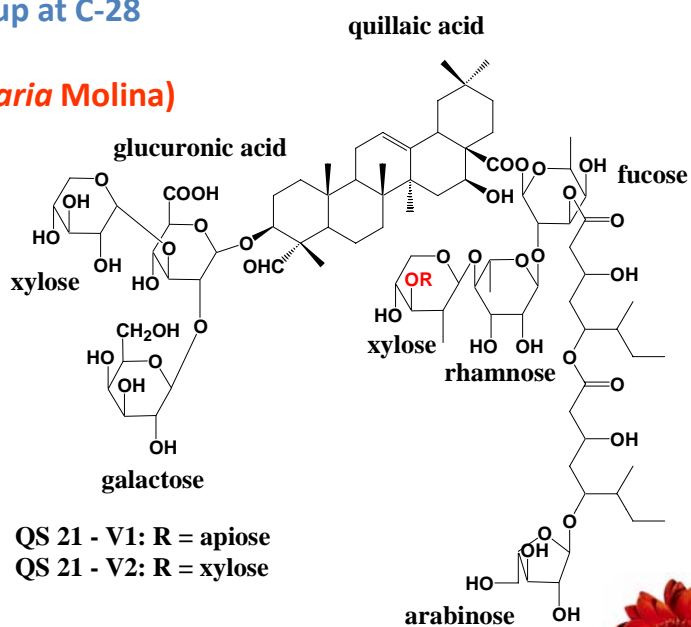


## GLYCOSYLATIONS AND ACYLATIONS

### Following steps:

- Glycosylations on glucuronic acid at C-3
- Glycosylations on carboxyl group at C-28
- Acylation on 28-sugar chain

**Example: QS 21 (*Quillaja saponaria* Molina)**

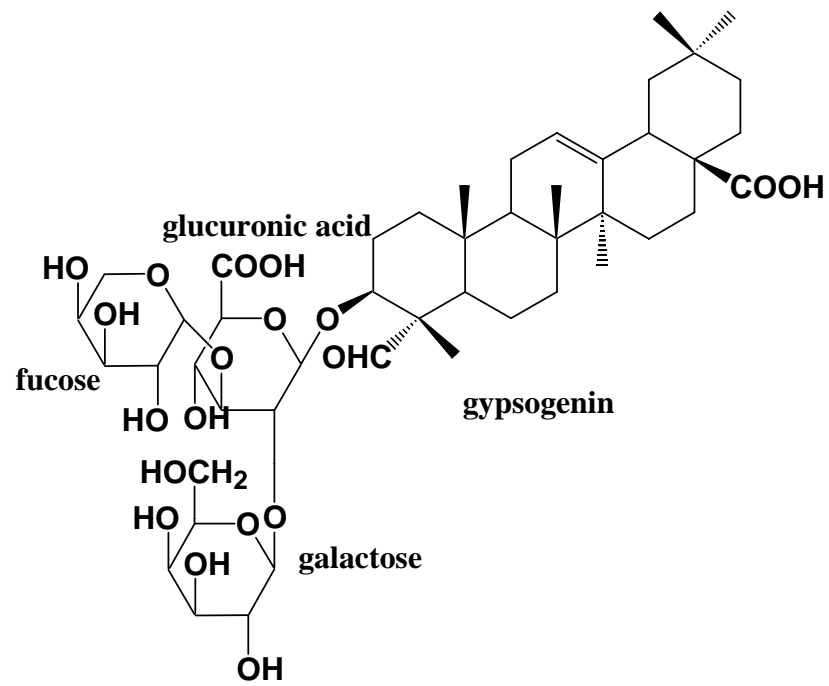


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## GYPSOGENIN 3,0-GLYCOSIDE

Main compound present in the "Saponin White Pure Merck"



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## The plants:

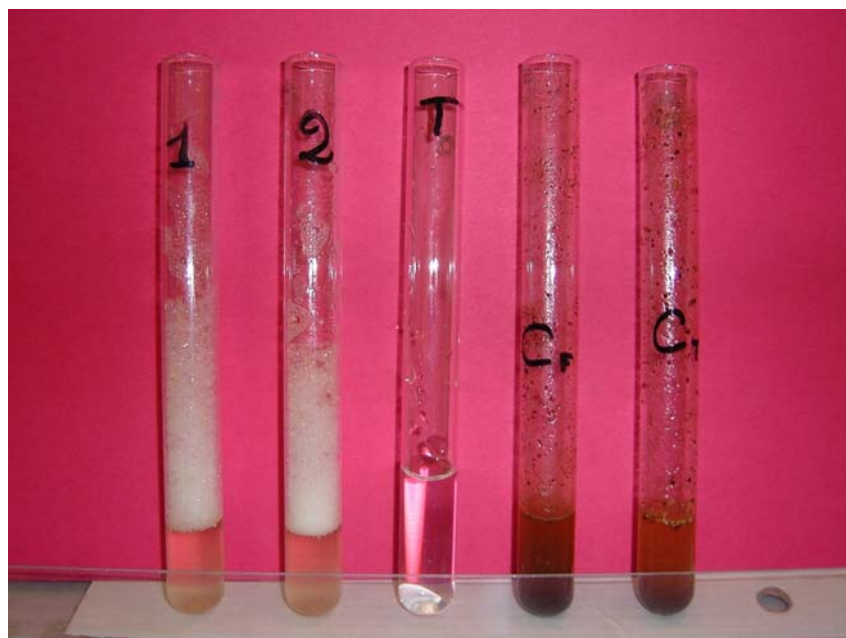
*Quillaja saponaria* Molina  
*Gypsophila paniculata* L.



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## Foaming properties

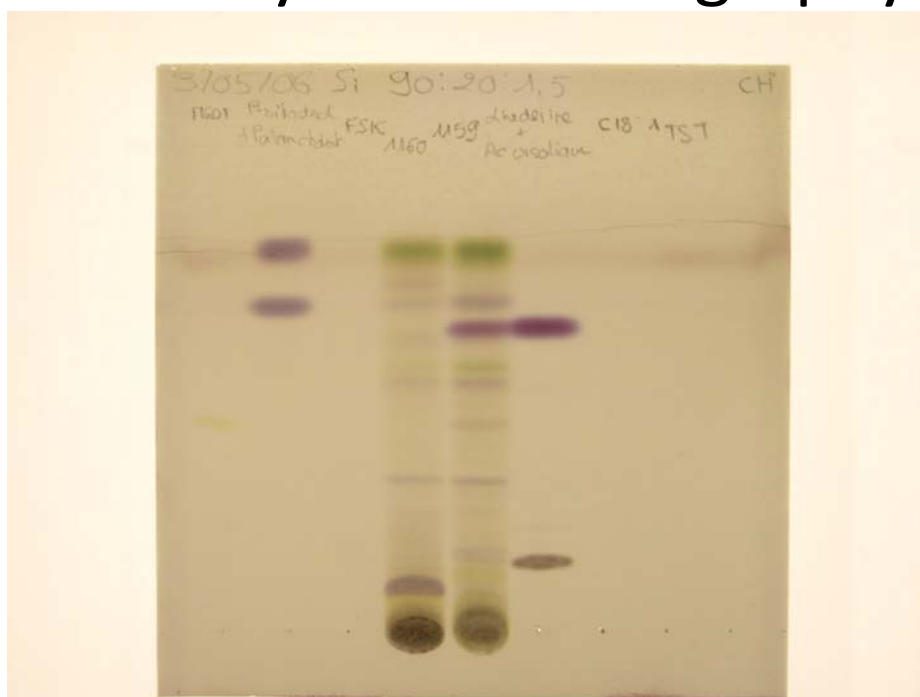


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# Thin layer chromatography

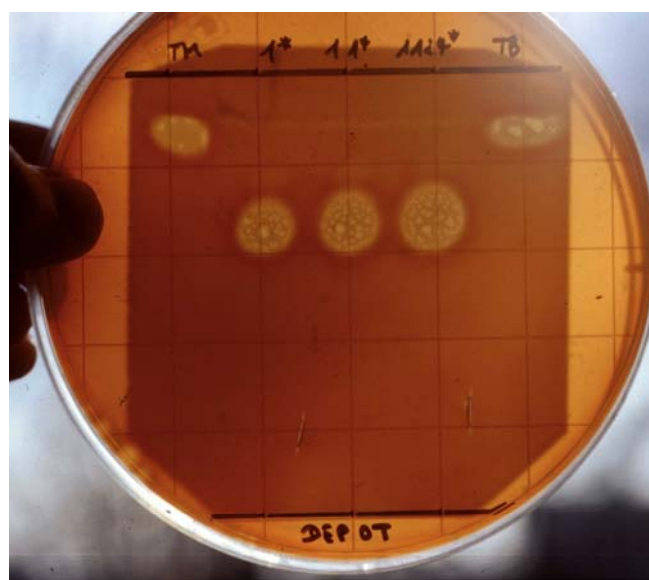


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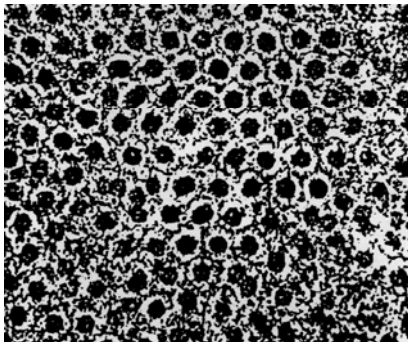
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# Heamolytic test



## Biological and industrial interest of *Gypsophila saponins*



- Haemolytic properties used for Biological Diagnostic
- Immuno-stimulating effect on mucosal cells of the intestine
- Foaming agent for cleaning surfaces (Electronic uses)
- Shrimps breeding
- Photography emulsions
- Fire extinguisher, etc



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