



Antioxidant and antiinflammatory activity in blackcurrant

Armelle Gollotte

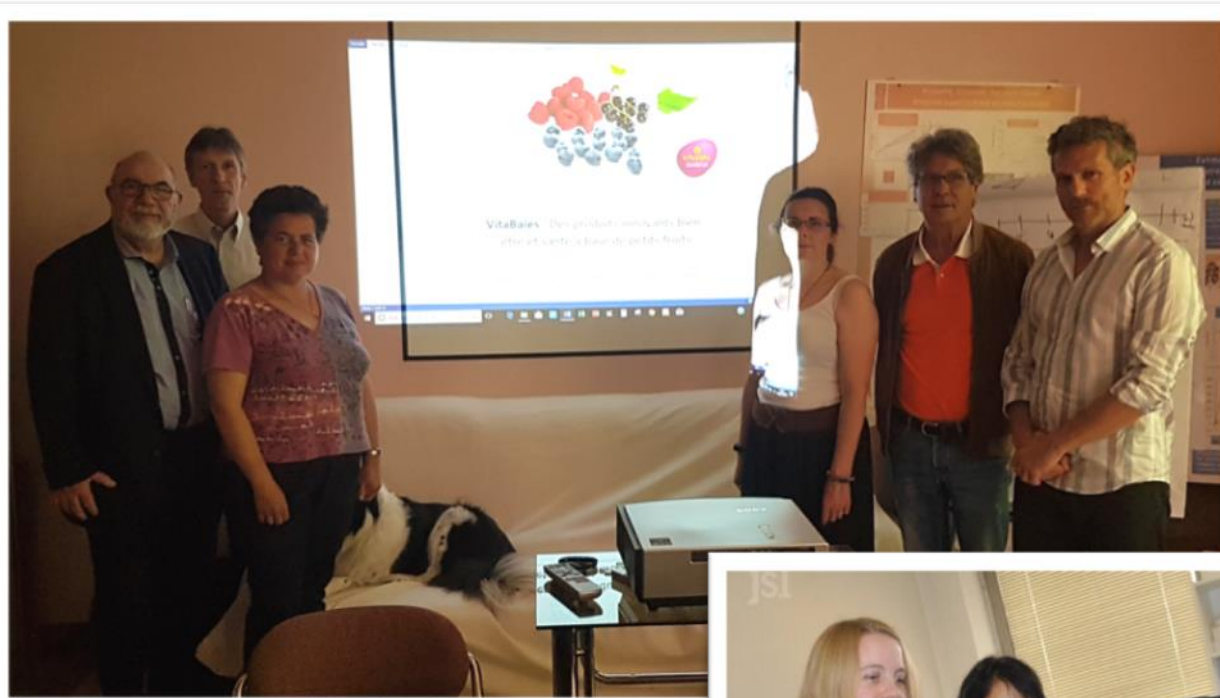


SOCOFRUIT





Vitabaies project



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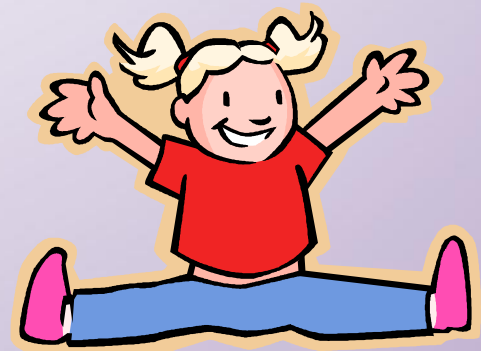
Health benefits of red fruits

Red fruits can prevent:

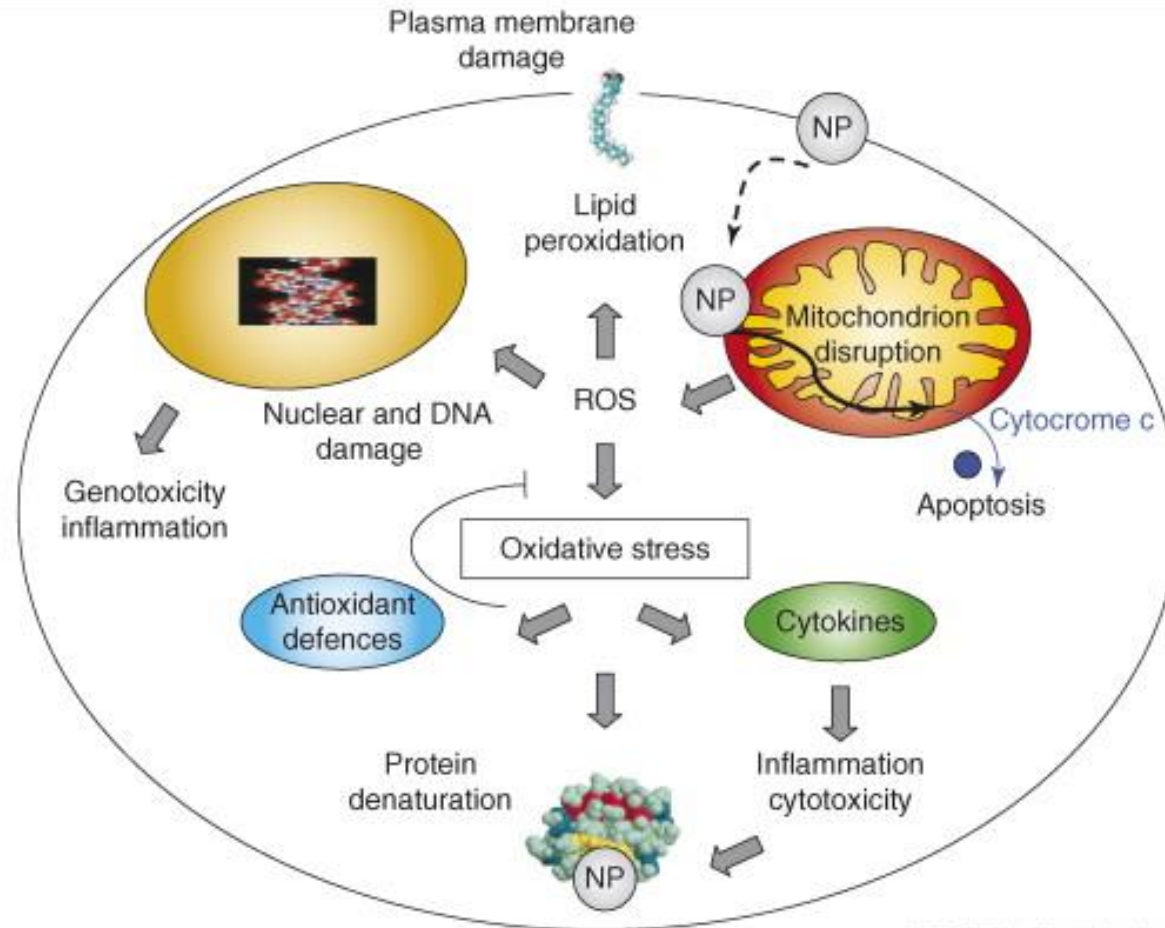
- Diabetis and hyperlipidemia
- Cardiovascular and neurodegenerative diseases
- Cancer
- Infection

via:

- Antioxidant and antiinflammatory activity

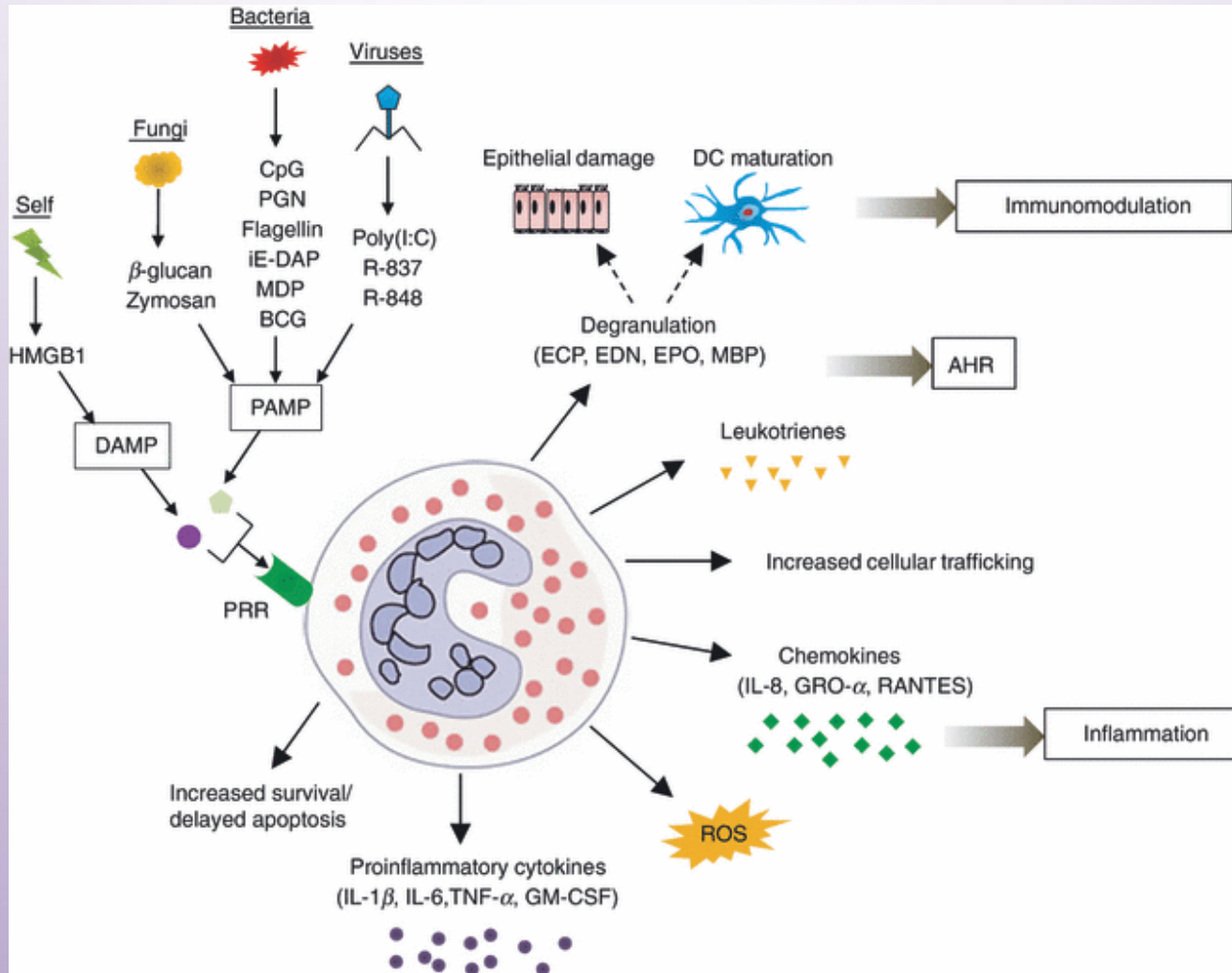


Oxidant activity



Sanvicens and Marco 2008

Inflammation



Kvarnhammar et al. 2012

What are the health promoting properties of blackcurrant cultivated in Burgundy?



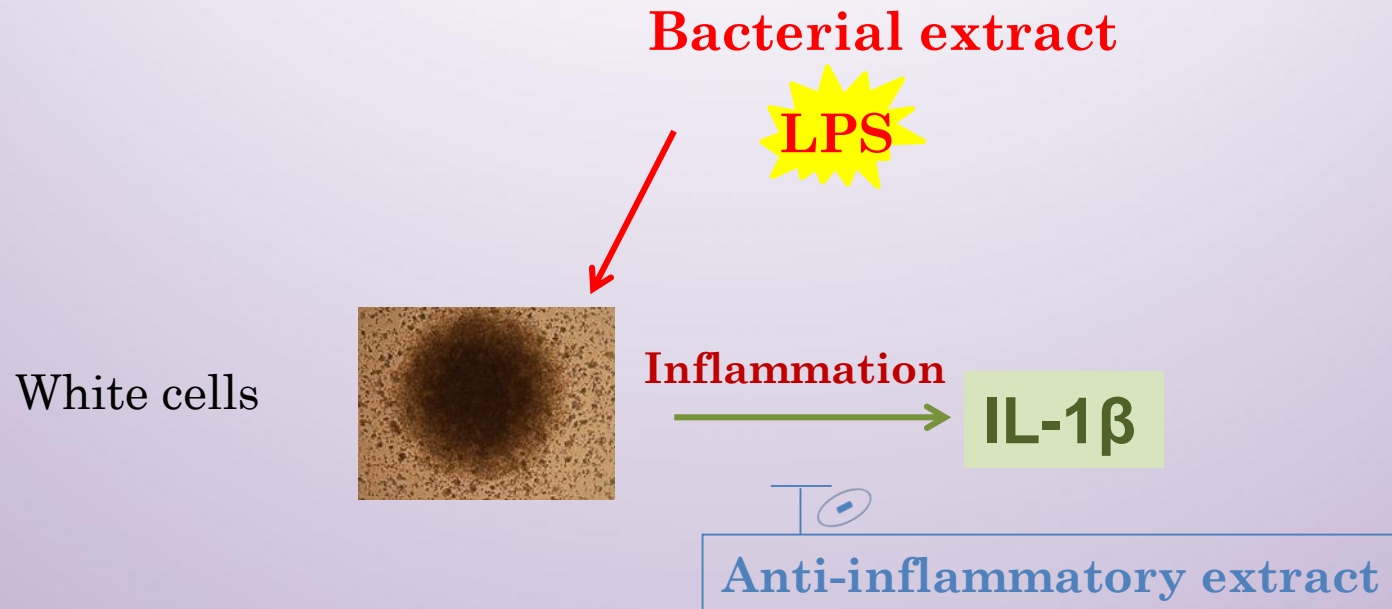
- Extracts from berries, leaves and juice press residues

- Lipophilic extracts (dichloromethane)

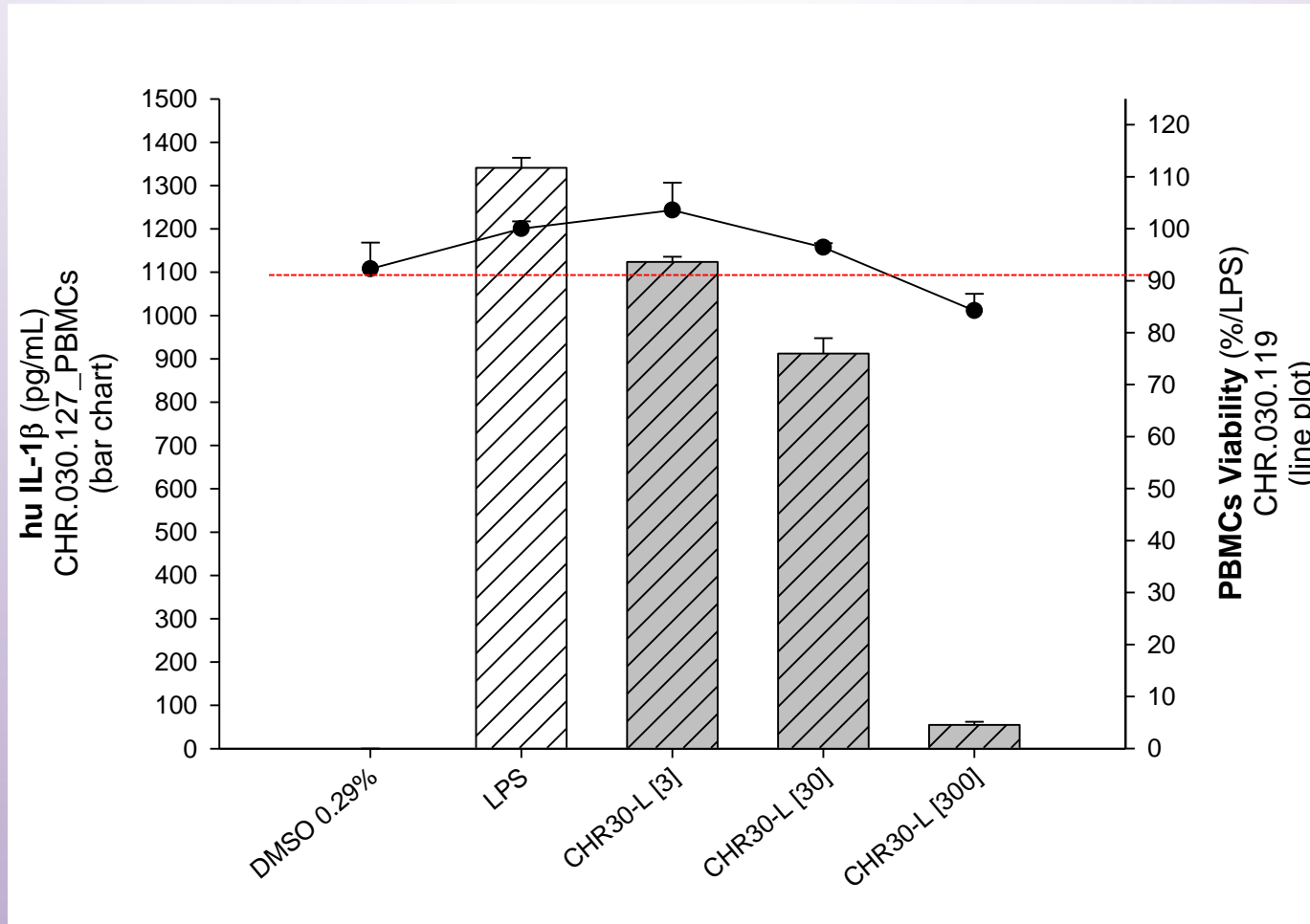
- Hydrophilic extracts (ethanol/ water)

➔ Antioxidant, antiinflammatory activities and polyphenolic composition

Measure of antiinflammatory activity



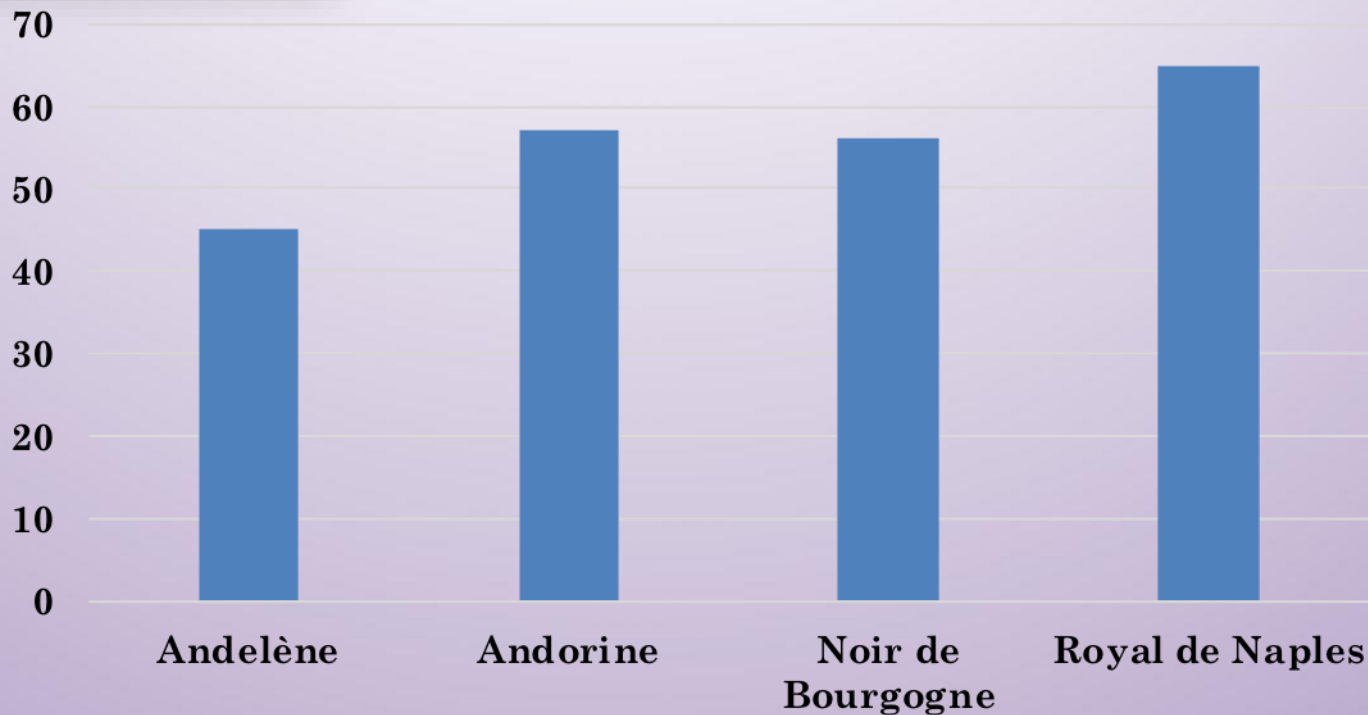
Antiinflammatory activity : Noir de Bourgogne blackcurrant



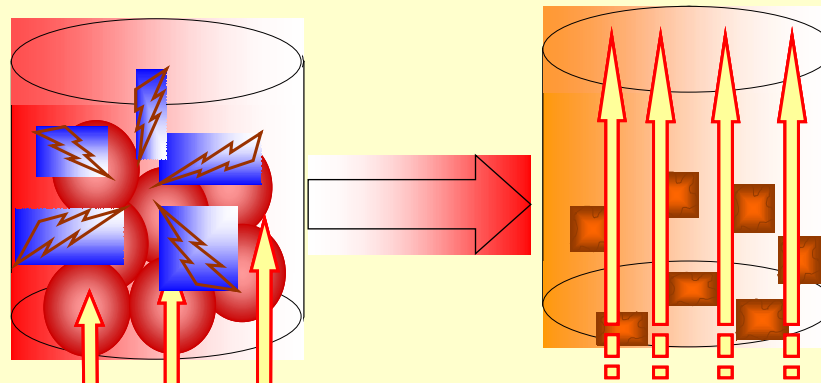
Genetic factor in antiinflammatory activity







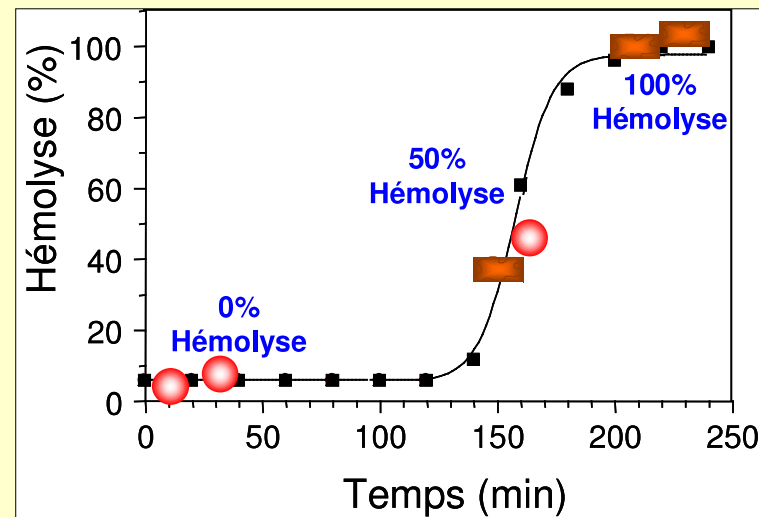
% IL-1 β / LPS



Measure of antioxidant activity (KRL test)



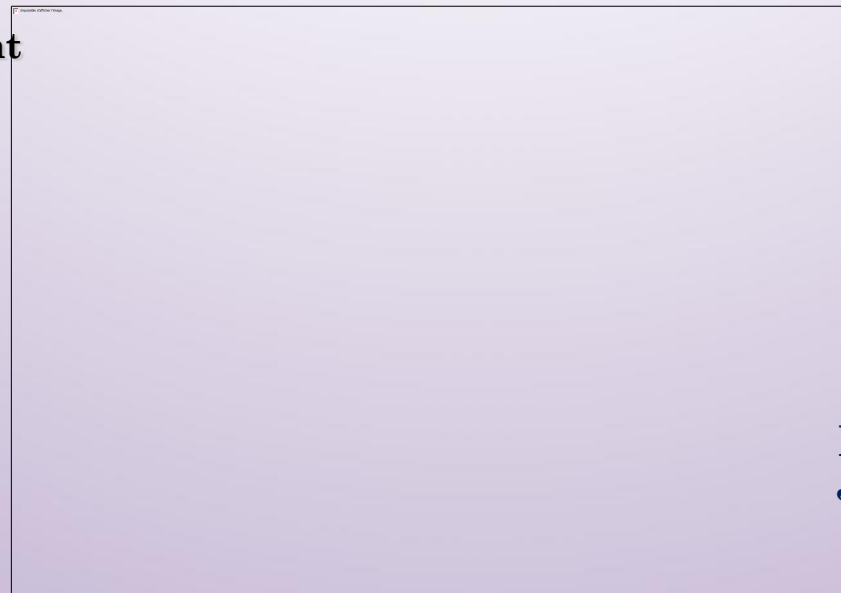
-  Erythrocyte
-  Cellule lysée
-  Attaque radicalaire
-  Flux lumineux



KRL test: Noir de Bourgogne blackcurrant



% increase in antioxidant activity



Berries (L)

Leaves (H)

Juice press residue (H)

Berries (H)

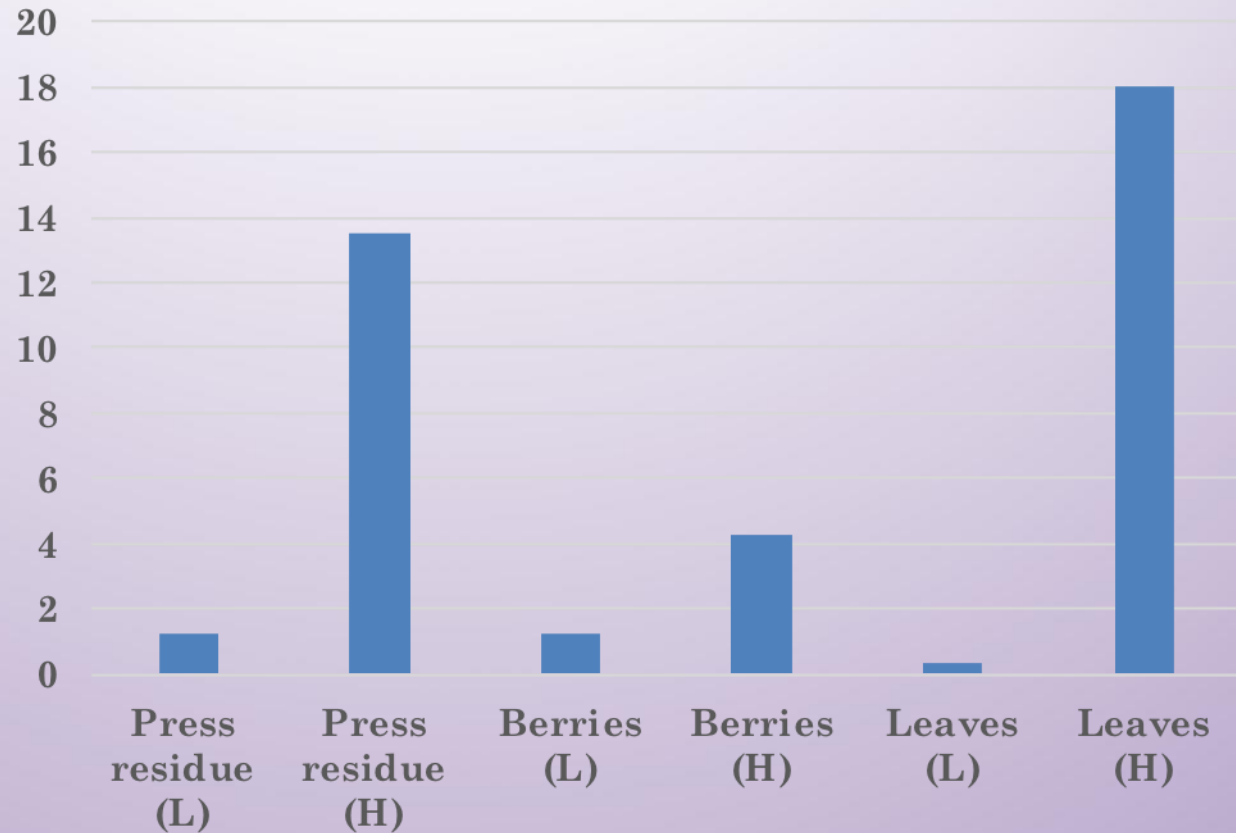
Juice press residue (L)

Leaves (L)

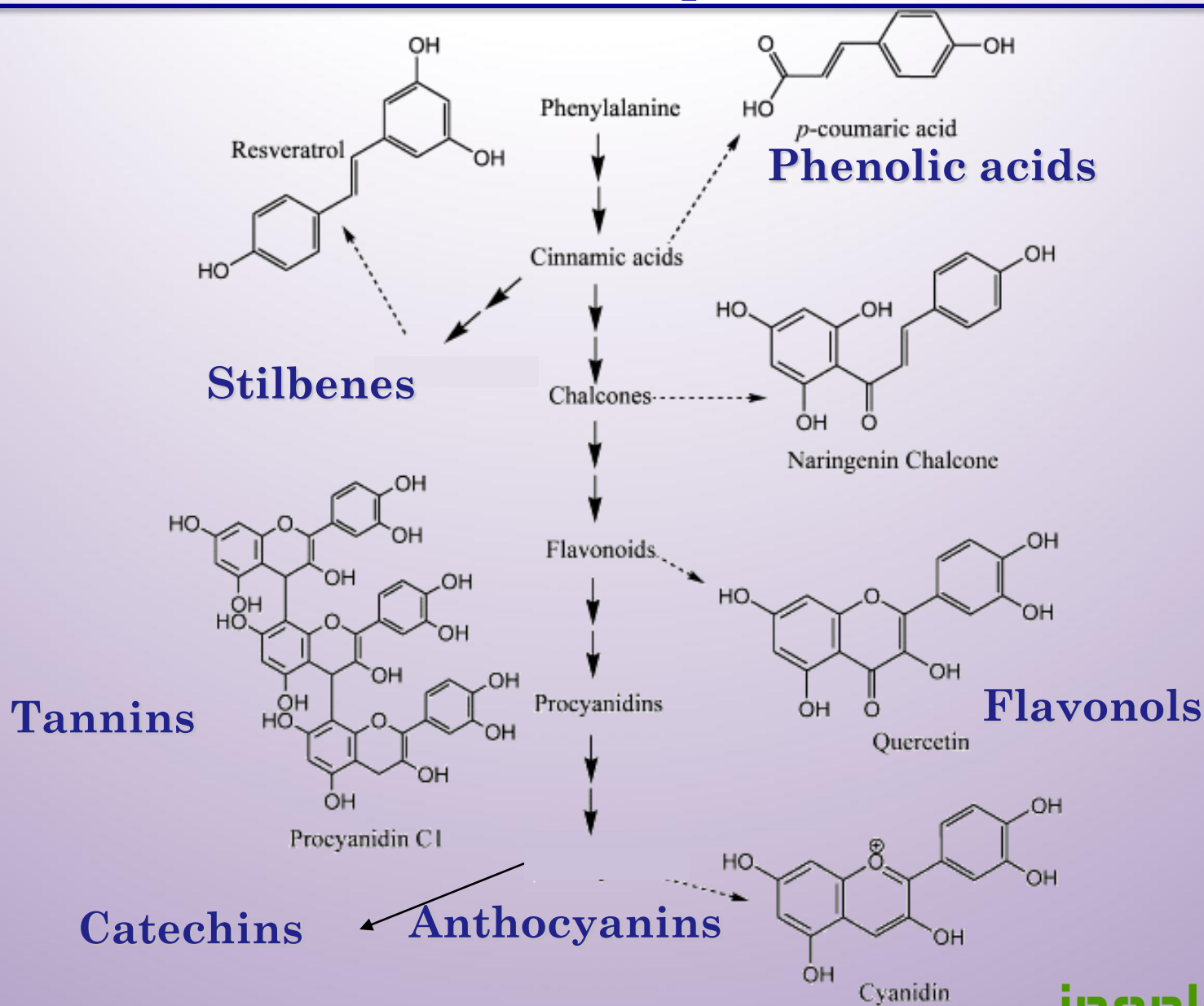
Extract concentration (mg/L)

Total phenolics

Concentration
(g eq gallic acid / 100 g)

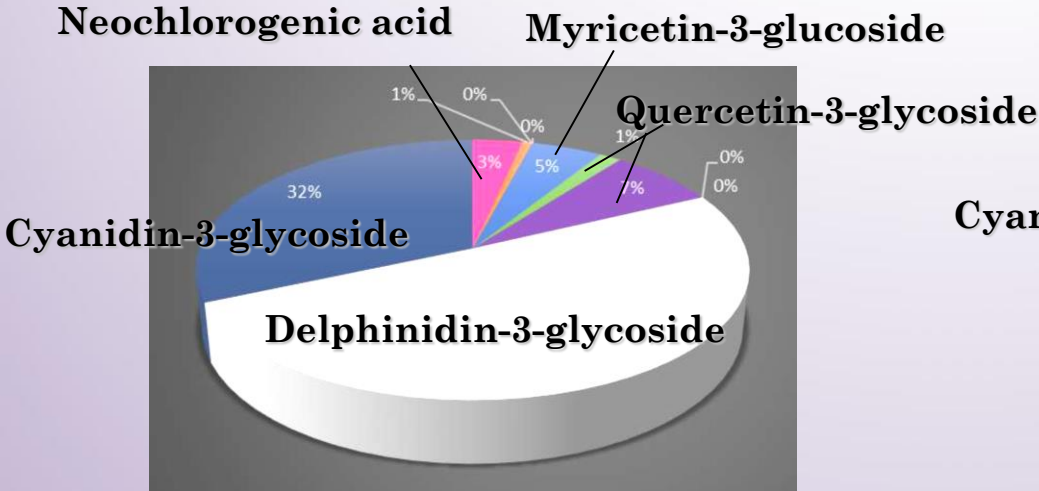


Phenolic compounds

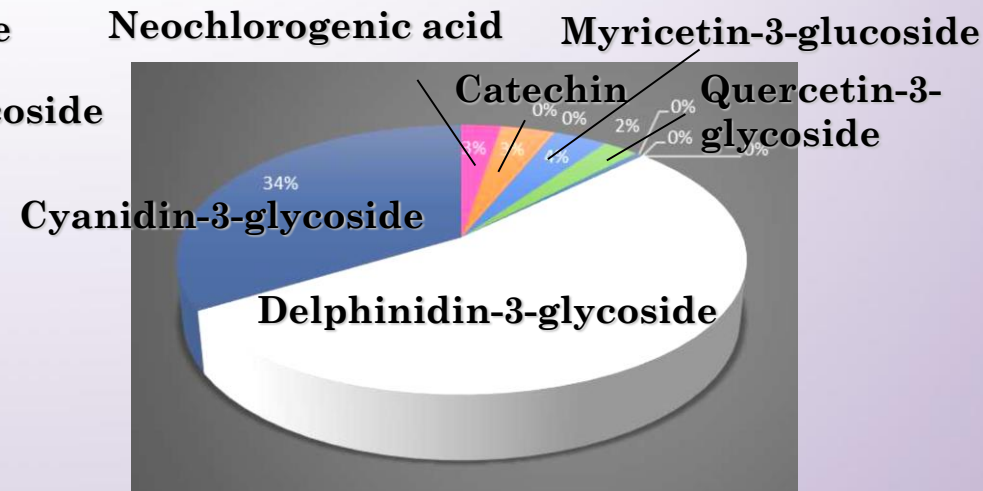


Polyphenols in blackcurrant extracts (HPLC analysis)

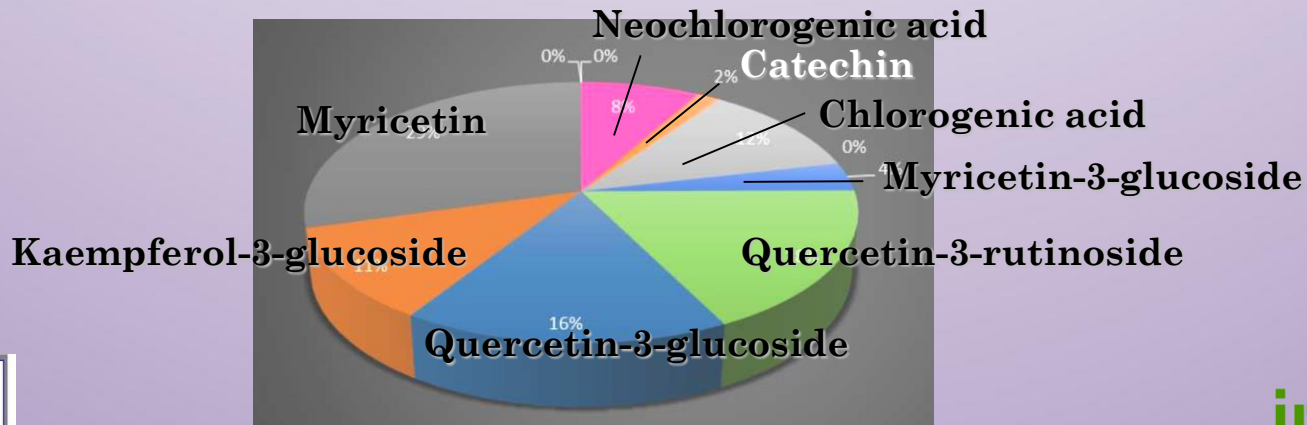
Juice press residue (H)



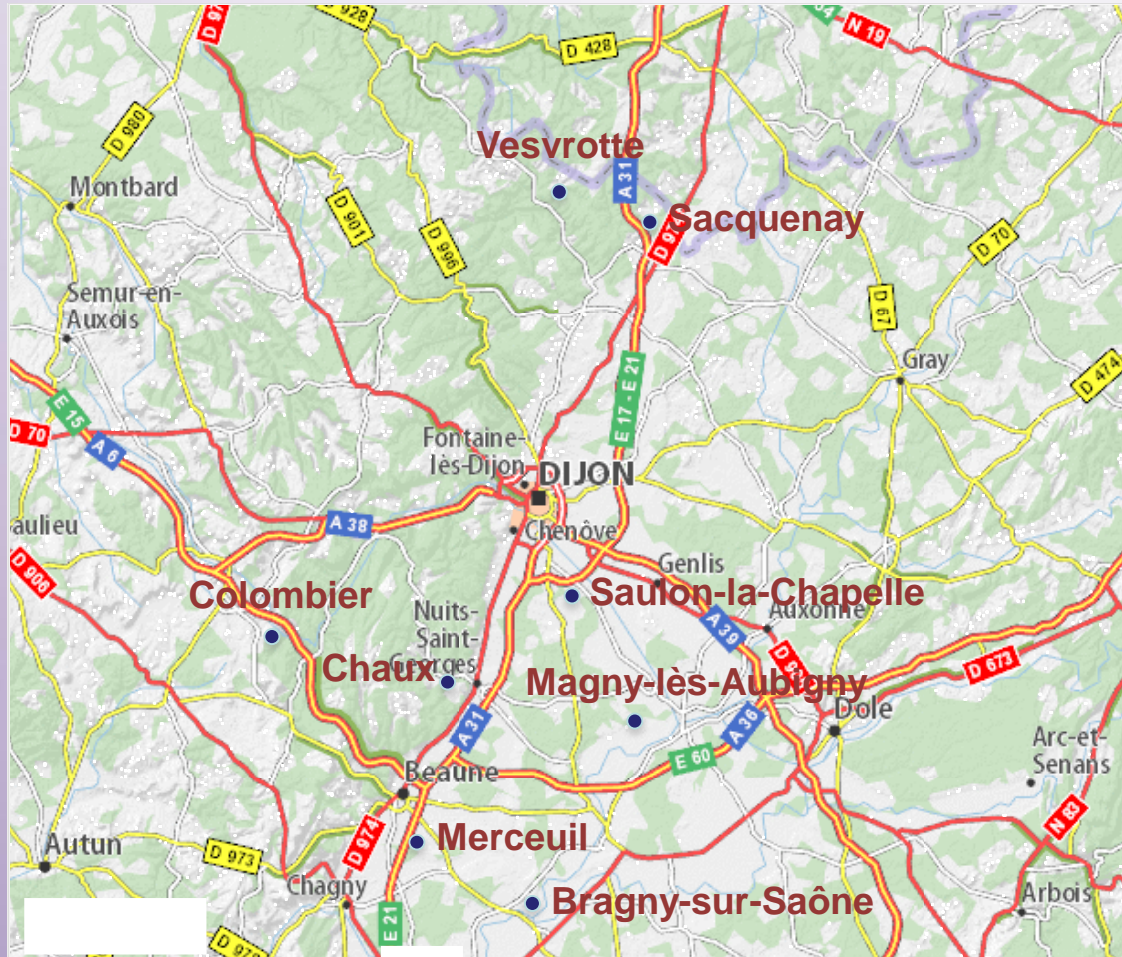
Berries (H)



Leaves (H)

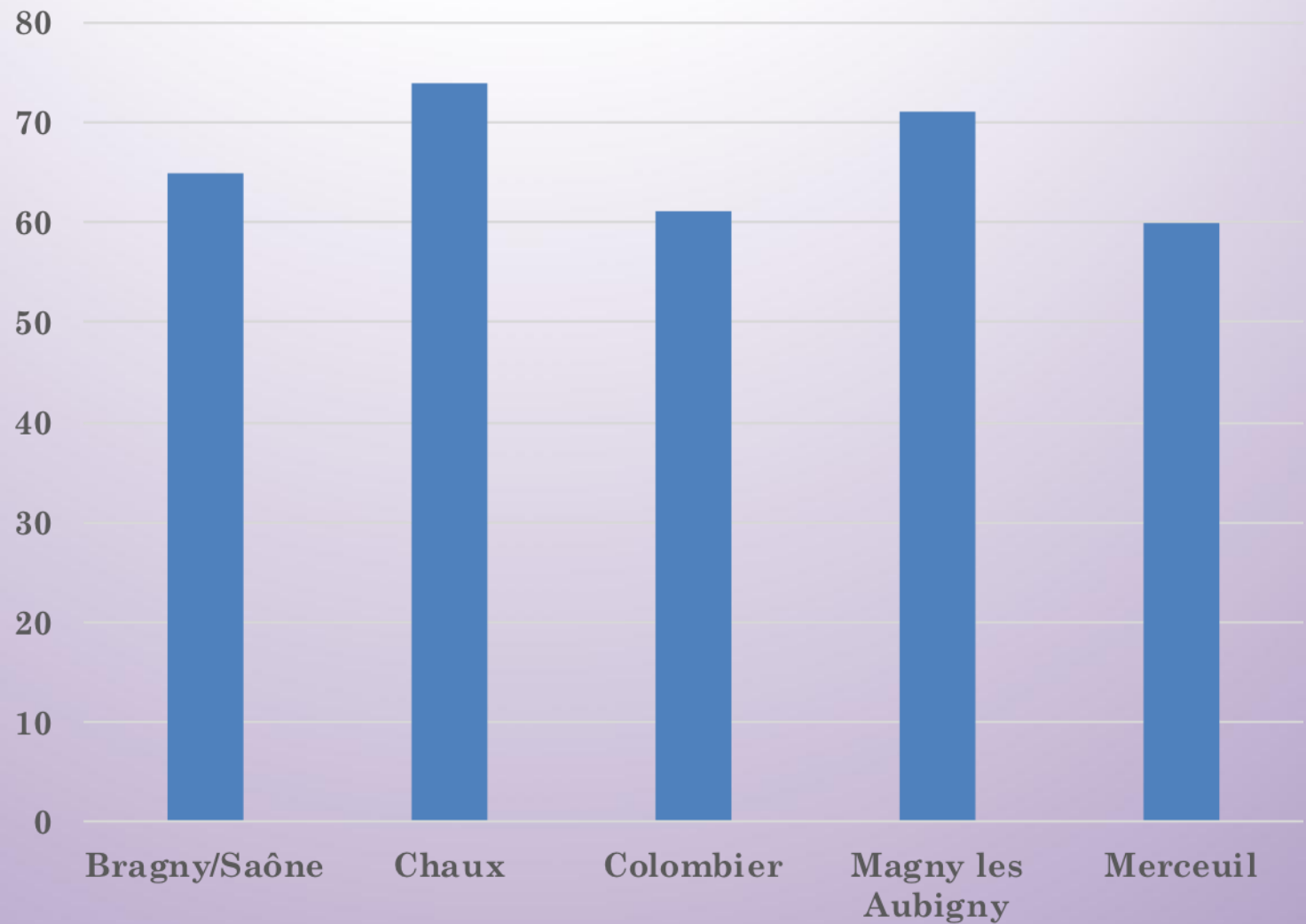


Are there differences between plantations?

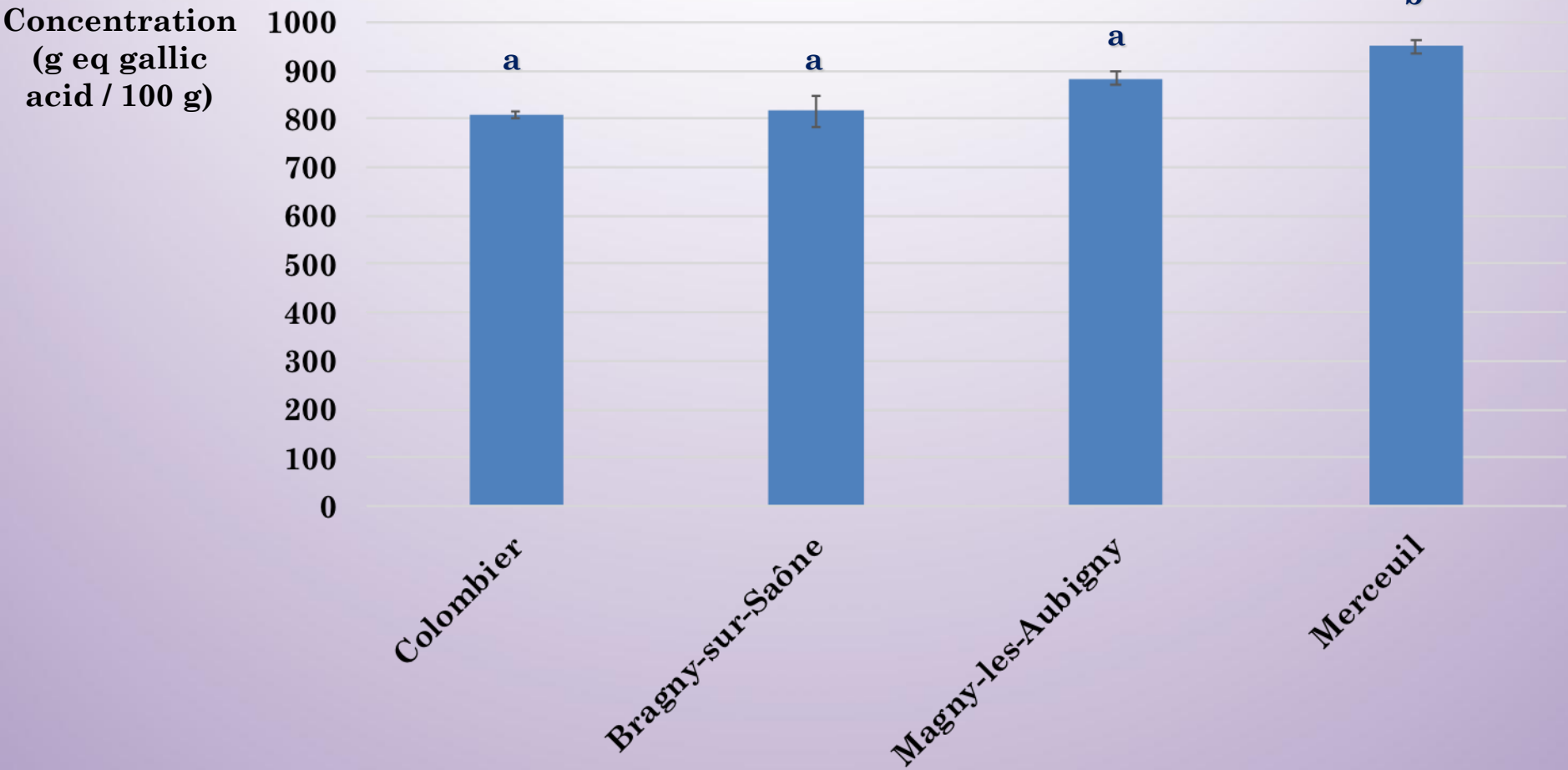


Antiinflammatory activity (2015)

% IL-1 β /LPS

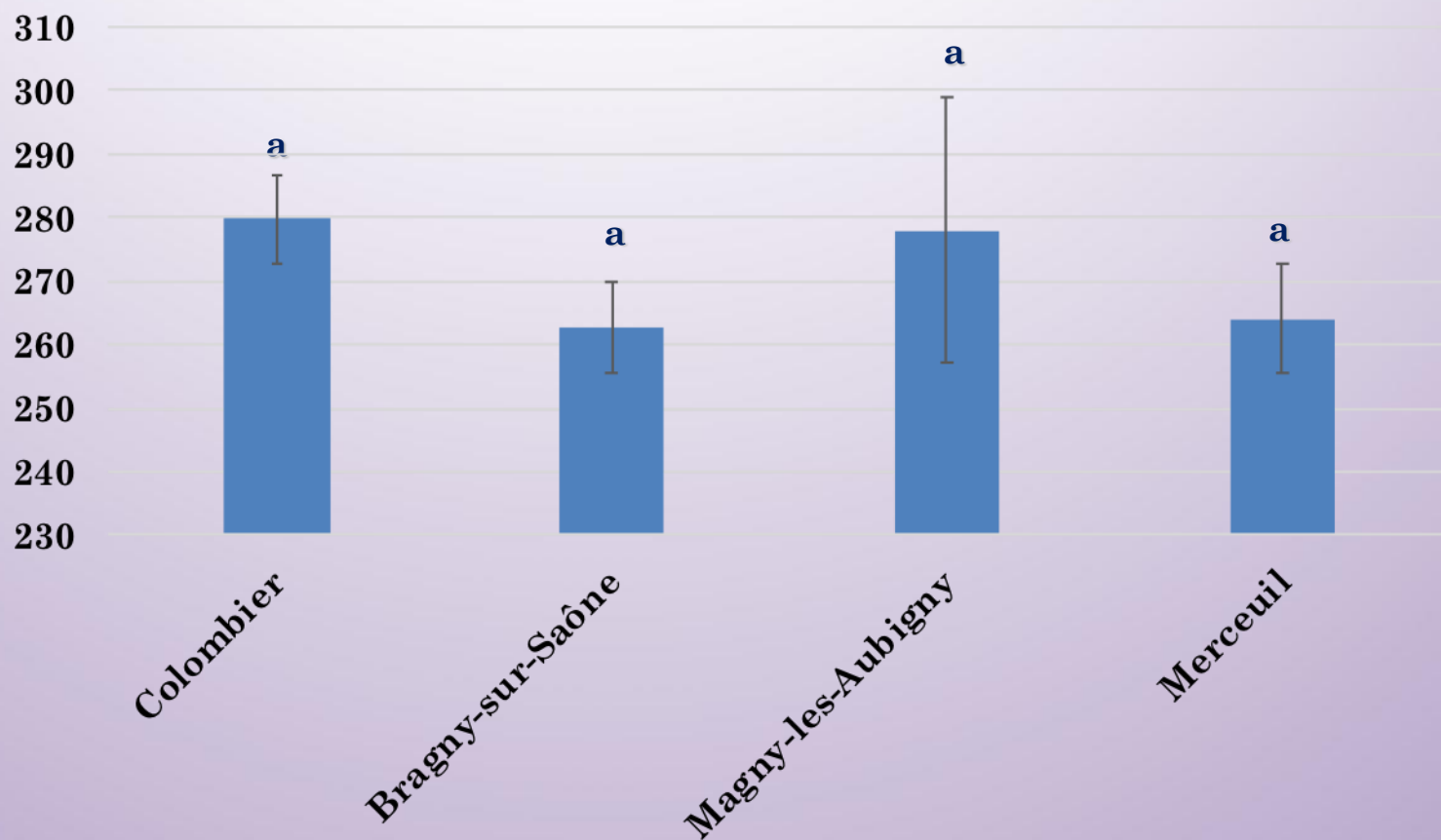


Total phenolics (2016)

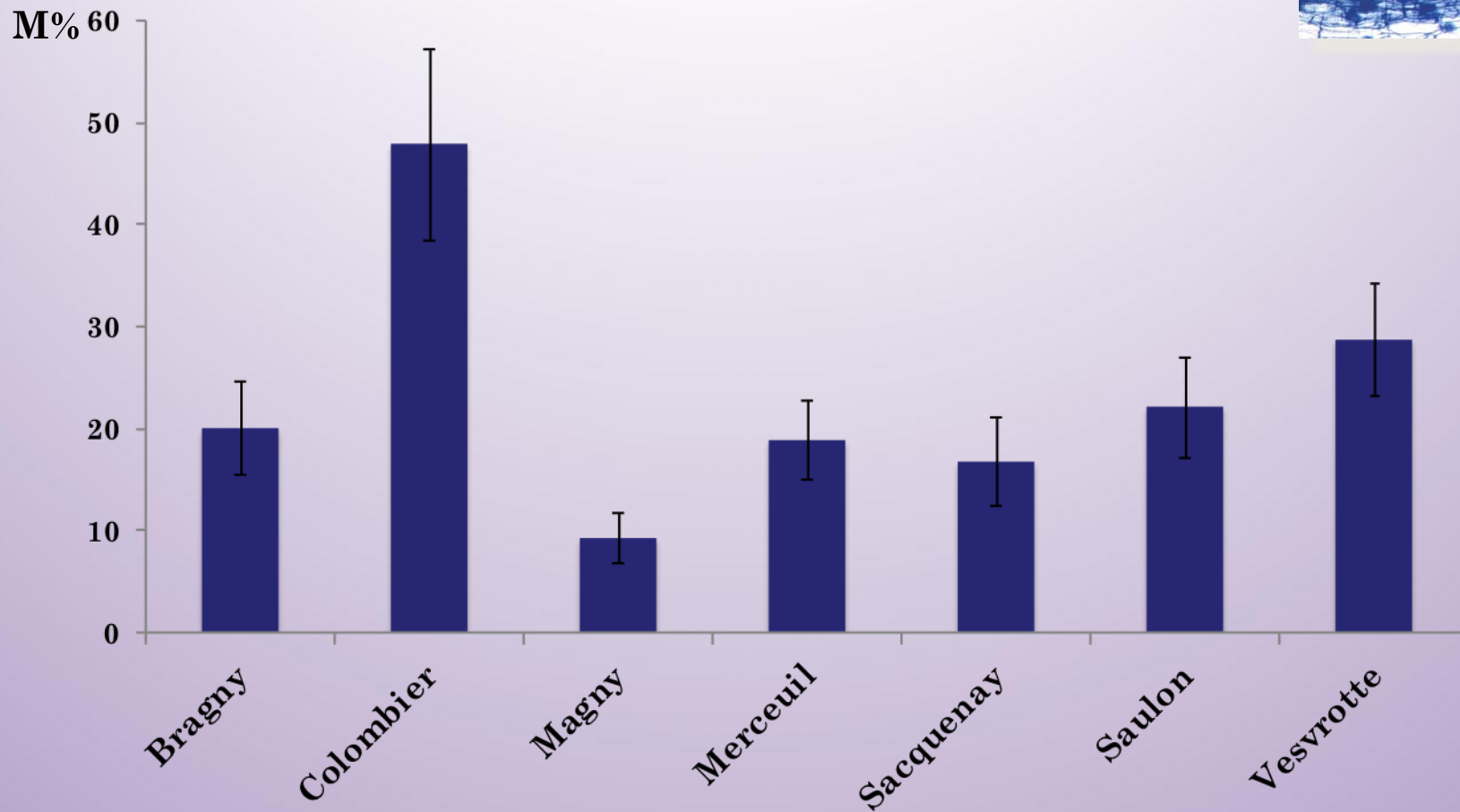
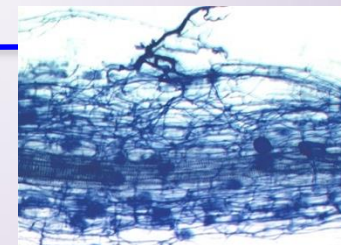


Anthocyanins (2016)

Concentration
(mg / 100 g)



Root colonisation by mycorrhizal fungi (2016)



Conclusions

Antioxidant and antiinflammatory activity in blackcurrant extracts is dependent on:

- **genetic factors**
- **plantations**

The variety Noir de Bourgogne has interesting antioxidant and antiinflammatory properties.