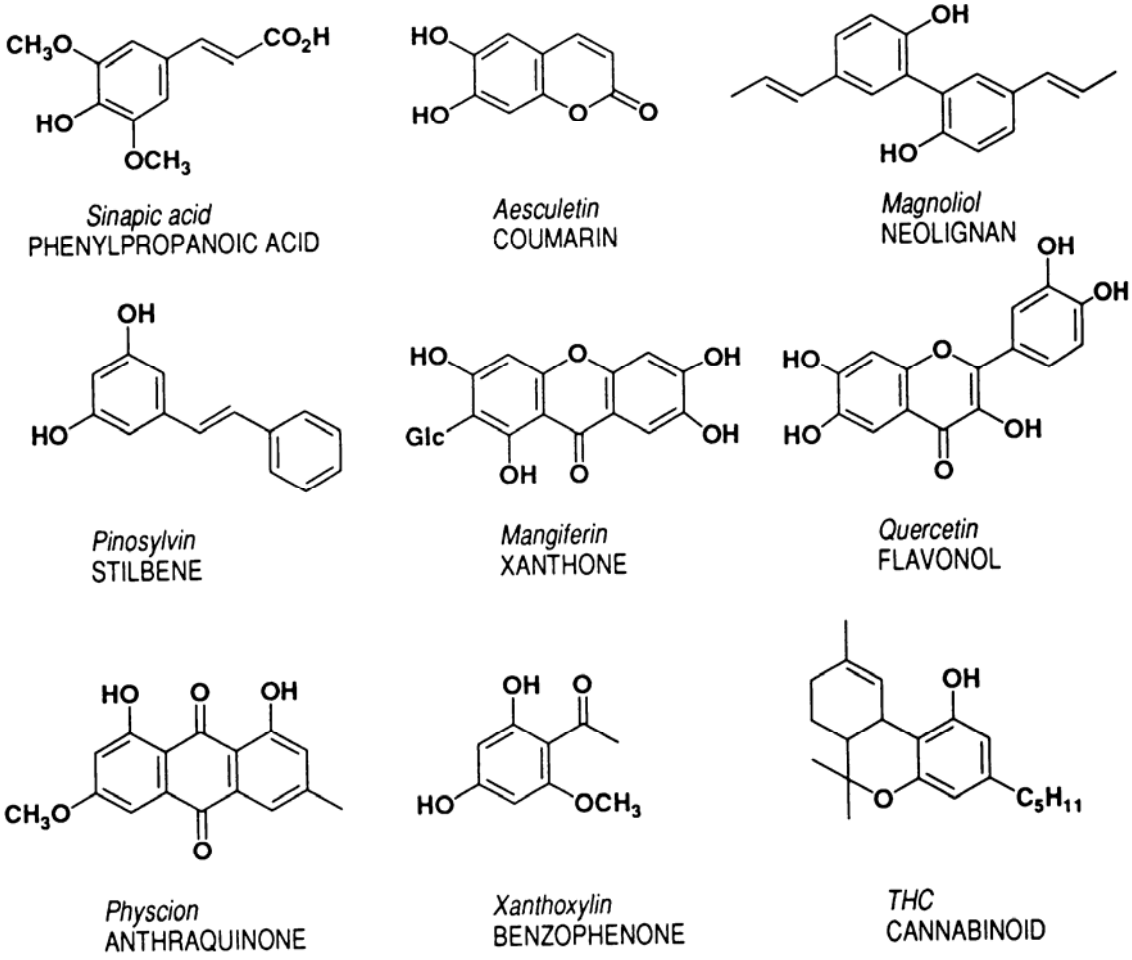
2. SEKUNDÁRNÍ METABOLITY

2.1 Fenolické látky (SH cesta: fenylpropanové deriváty)

Níže jsou uvedeny základní typy fenolických látek, které se běžně v rostlinách vyskytují.

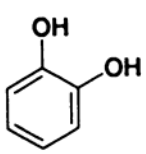


2.1.1 Fenoly a fenolické kyseliny

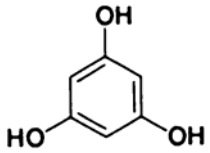
2.1.1.1 Jednoduché fenoly

Běžné jsou mono- a difenoly, menší část obsahových látek tvoří trifenoly (deriváty floroglucinu). Tyto látky jsou přítomny volné, často ve formě glykosidů, příp. methyletherů.

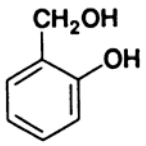
Alkylfenoly jsou charakteristické pro lišejníky, fenolické monoterpeny (nejběžnější je thymol) pro čeleď Lamiaceae.



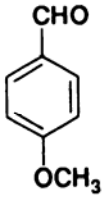
Catechol



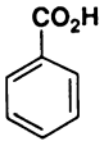
Phloroglucinol



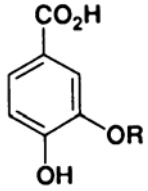
Salicylic alcohol



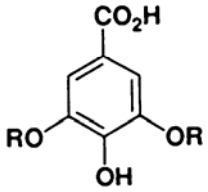
p-Anisaldehyde



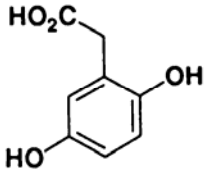
Benzoic acid



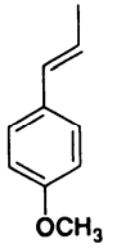
R = H, *Protocatechic acid*
R = CH_3, *Vanillic acid*



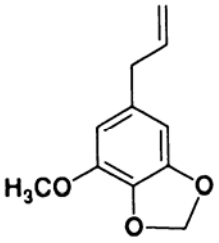
R = H, *Gallic acid*
R = CH_3, *Syringic acid*



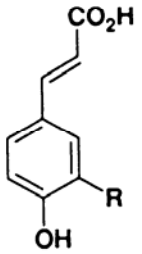
Homogentisic acid



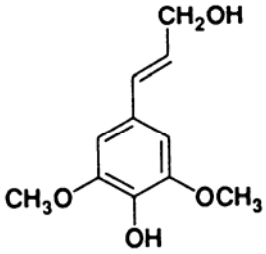
E-Anethole



Myristicin



R = H, *p-Coumaric acid*
R = OH, *Caffeic acid*
R = OCH_3, *Ferulic acid*



Sinapyl alcohol

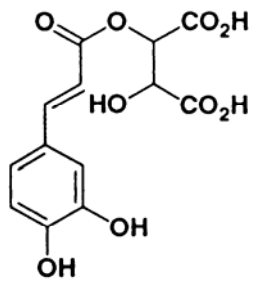
- Ericaceae - *Arctostaphylos uva-ursi*
- Asteraceae - *Cynara scolymus* (estery kávové kyseliny)
- Lamiaceae - *Rosmarinus officinalis*, *Orthosiphon stamineus* (rozmarinová kys.)

2.1.1.2 Fenolické kyseliny

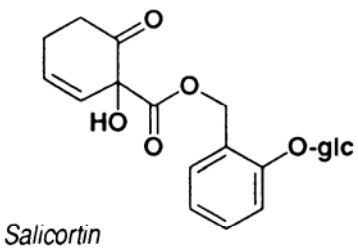
vycházejí z

kyseliny benzoové: gallová kyselina její dimér (hexahydroxydifenová); gallová kyselina je základem hydrolyzovatelných tříslovin

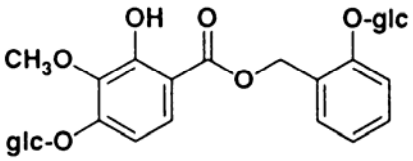
- Rosaceae - *Filipendula ulmaria*
- Asteraceae - *Solidago virgaurea*
- Salicaceae - *Salix alba*



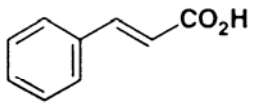
Monocaffeoyltartaric acid



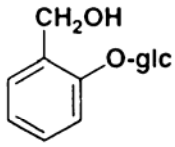
Salicortin



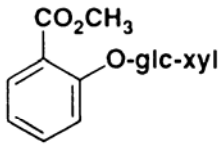
Leiocarposide



(E)-Cinnamic acid



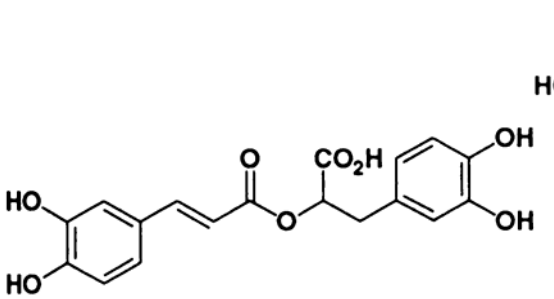
Salicin



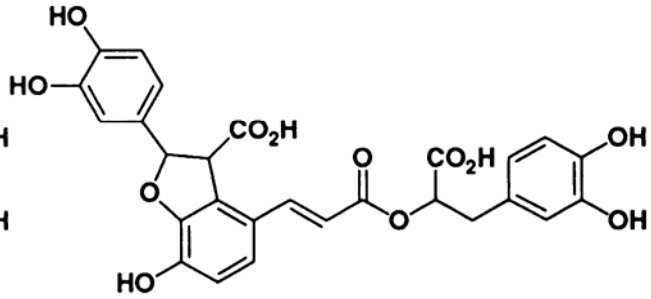
Monotropitoside

kyseliny skořicové: kyseliny p-kumarová, kávová, ferulová, sinapová

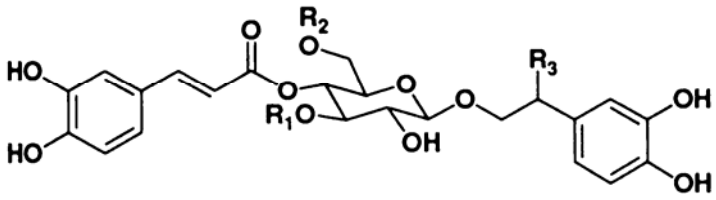
🗁 zástupci čeledí Asteraceae, Lamiaceae, Boraginaceae



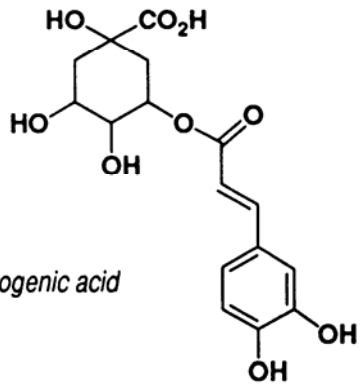
Rosmarinic acid



Lithospermic acid



R_1 = rha, R_2 = R_3 = H, Verbascoside
R_1 = glc, R_2 = R_3 = H, Plantamajoside
R_1 = glc, R_2 = H, R_3 = OH, Hellicoside
R_1 = R_3 = H, R_2 = rha, Forsithyaside
R_1 = rha, R_2 = glc, R_3 = H, Echinacoside
R_1 = R_2 = rha, R_3 = H, Poliumoside

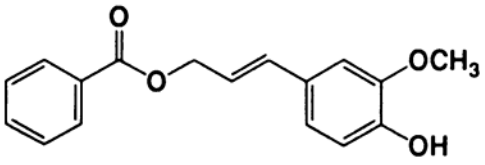


Chlorogenic acid

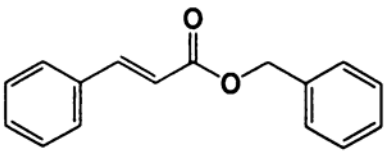
2.1.1.3 Estery benzoové a skořicové kyseliny (také glykosidické fenylpropanové estery)

🗁 výskyt v řádech Lamiales, Oleales, Asterales a některých dalších

🗁 Fabaceae - *Myroxylon balsamum* var. *pereirae*



Coniferyl benzoate



Benzyl cinnamate