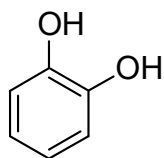
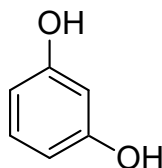


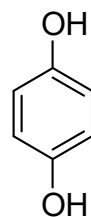
Polifenole



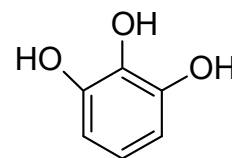
pirokatechina



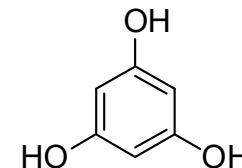
rezorcyna



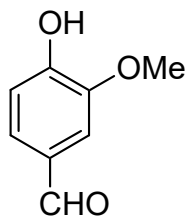
hydrochinon



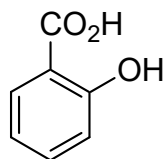
pirogalol



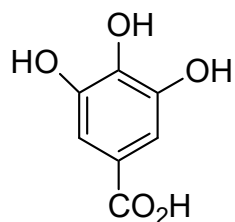
floroglucynol



wanilina

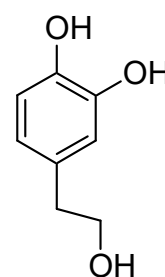


kwas salicylowy



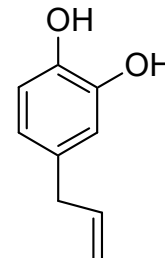
kwas galusowy

składnik
tanin



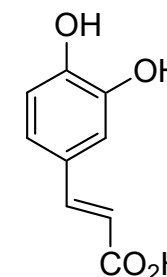
hydroksytyrosol

oliwa z oliwek
(antyutleniacz)



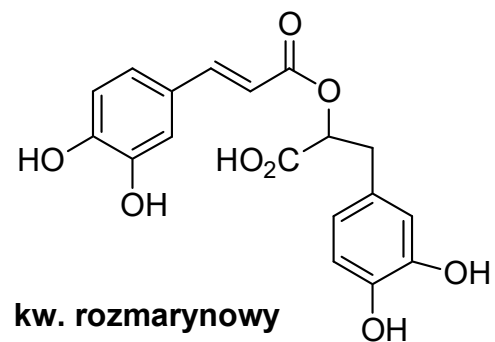
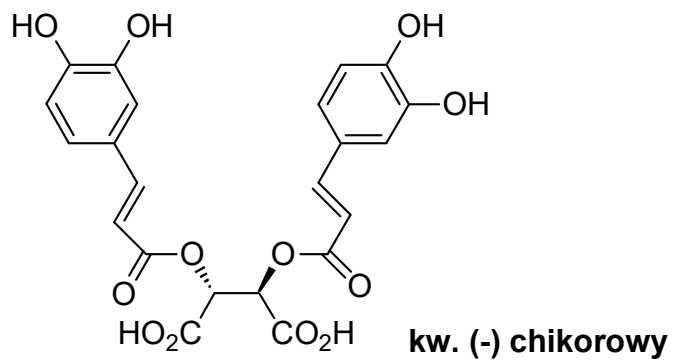
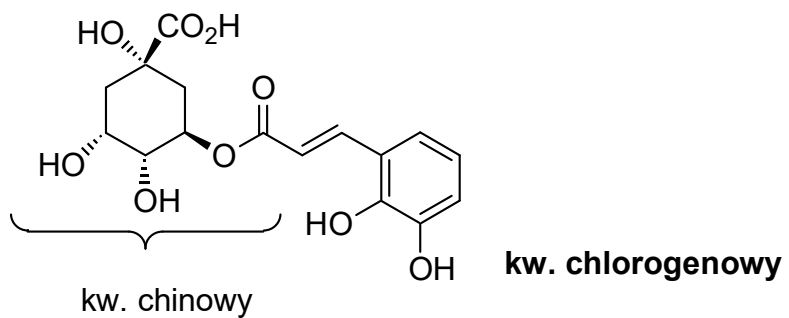
eugenol

o. goździkowy
aromat bananów

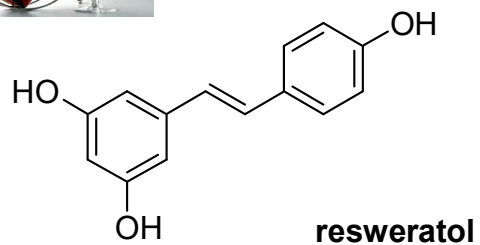
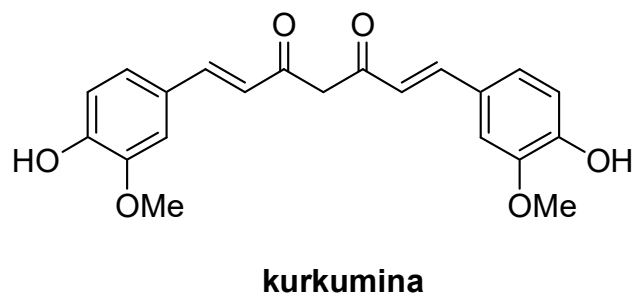
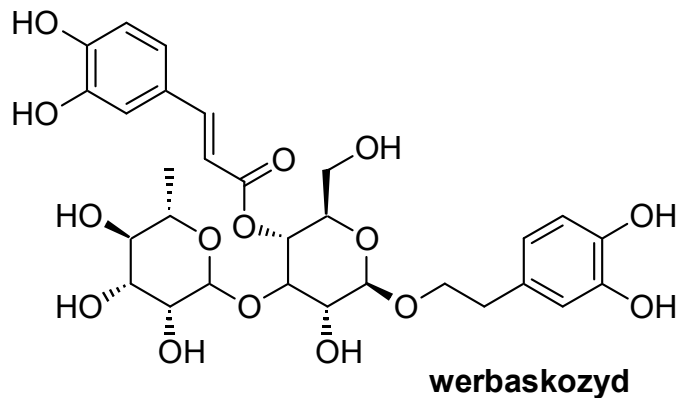


kwas kawowy

Polifenole - depsydy



Polifenole – depsydy cd.; i inne...



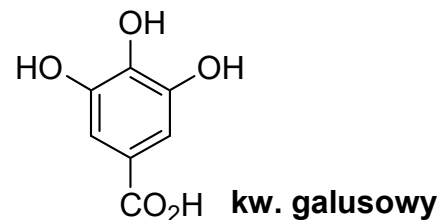
Polifenole - **Taniny, garbniki roślinne, garbniki naturalne (E181)**

Podział:

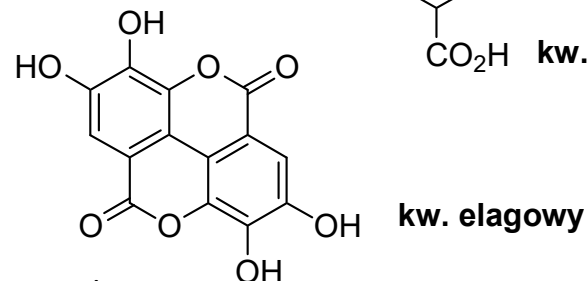
HTs – łatwo hydrolizujące	PAs – proantocyjanidyny, skondensowane
pochodne kw. galusowego + cukru (glukozy)	łączenie flawonoidów
Indukują apoptozę i redukują podziały kom. (działanie przeciwnowotorowe) Herbata!!!	Niedojrzałe owoce Kora dębu, inne...

Taniny – łatwo hydrolizujące

➤ Galotaniny – nawet do 1000 reszt kw.galusowego



➤ Elagotaniny – z kw. elagowym

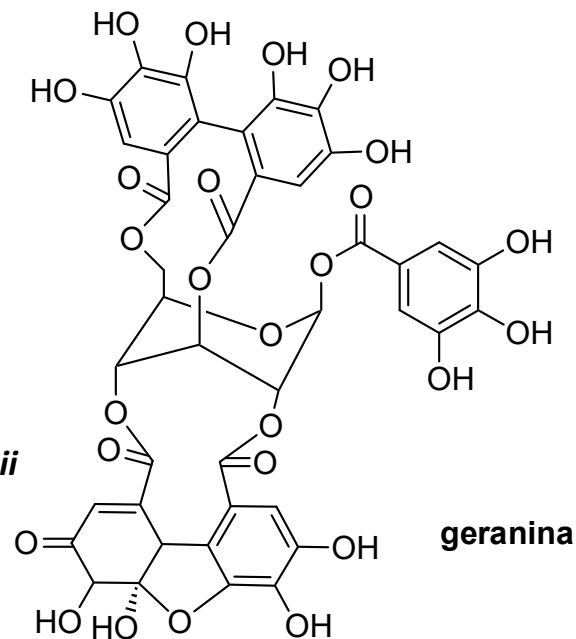


Źródło

- **galasy** – cenny surowiec farmaceutyczny
- herbata ; herbata zielona (w tym również katechiny do 40 % suchej masy!)
- kora dębu

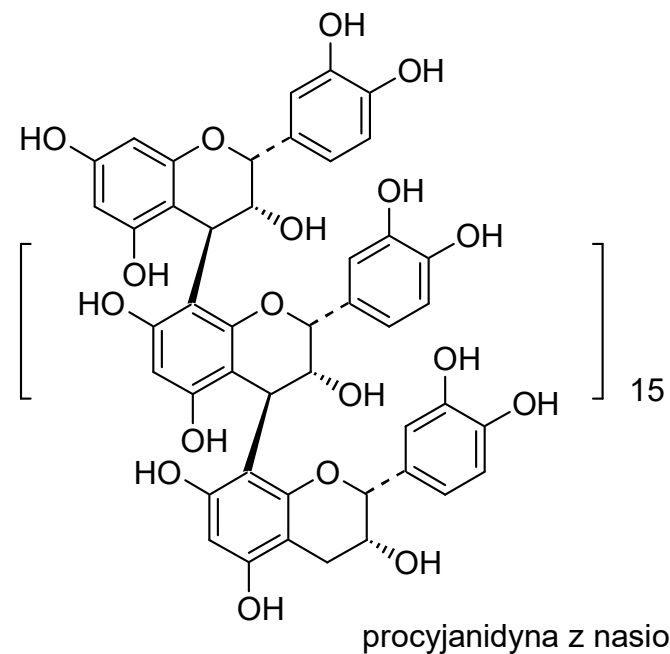
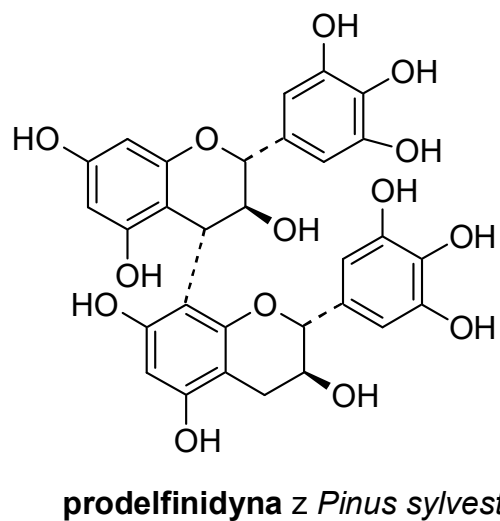
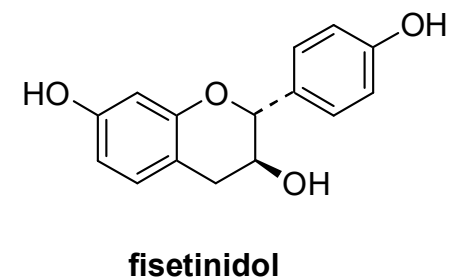
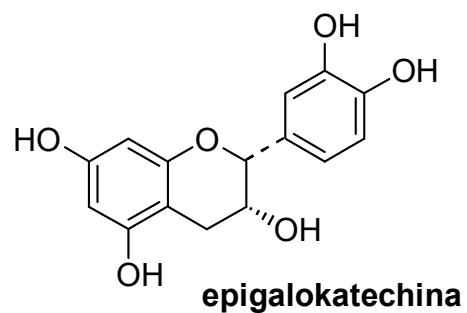
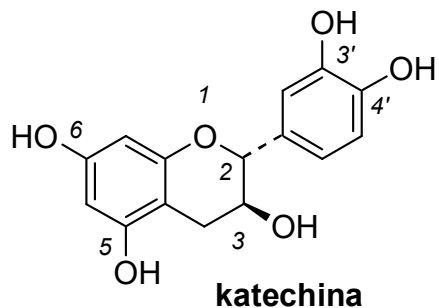


Geranium thunbergii



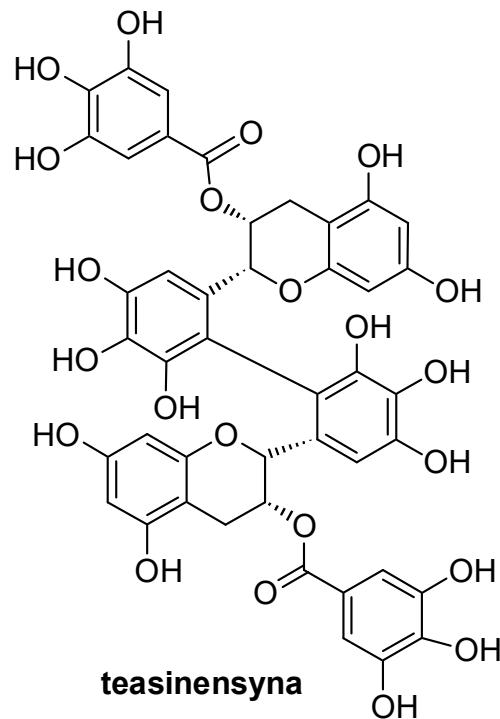
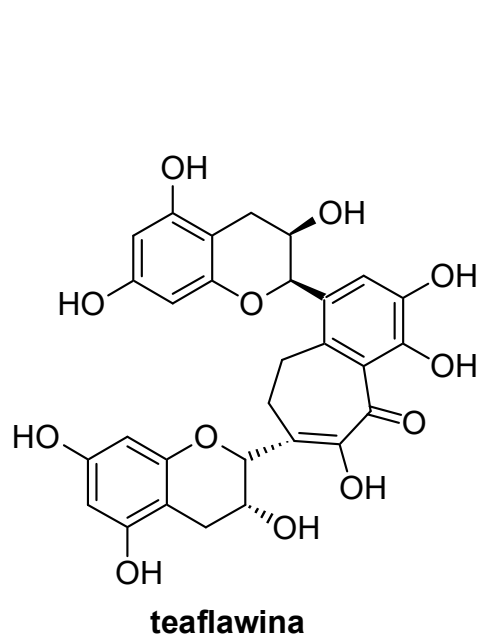
➤ w Japonii lek przeciw biegunkowy

Taniny skondensowane – **procyjanidyny**

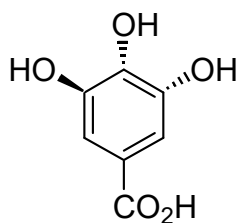


Tworzenie tanin skondensowanych – fermentacja herbaty

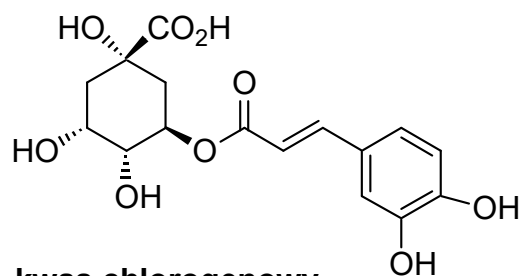
herbata zielona → herbata czarna



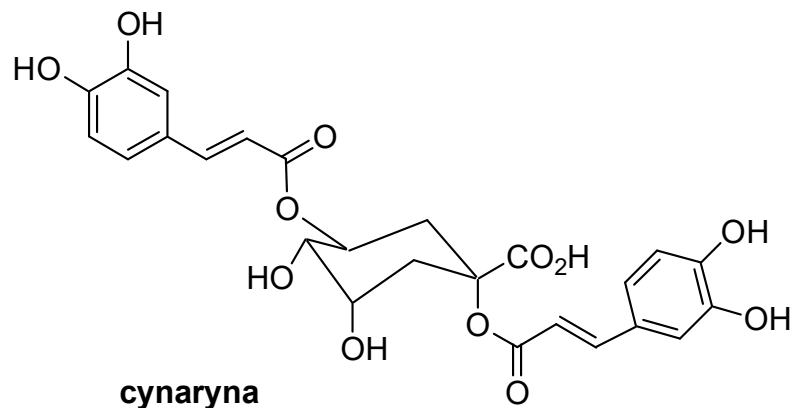
Pseudotaniny



kwask szikimowy



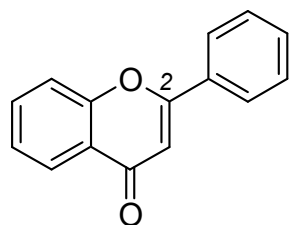
kwask chlorogenowy



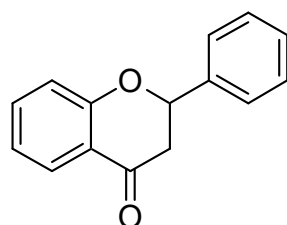
cynaryna

Flawonoidy

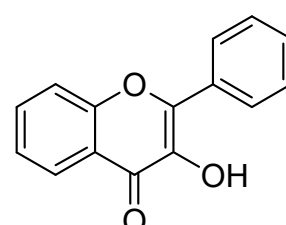
łac. *flavus* - kolor żółty



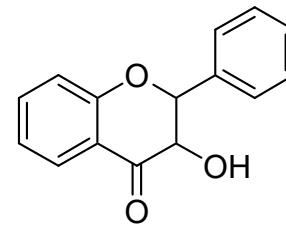
flawon



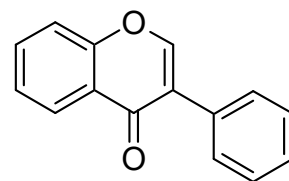
flawanon



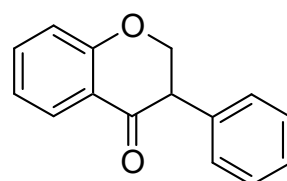
flawonol



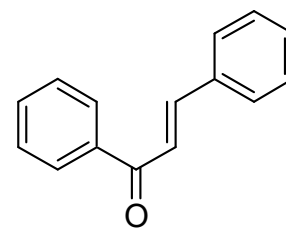
dihydroflawanol



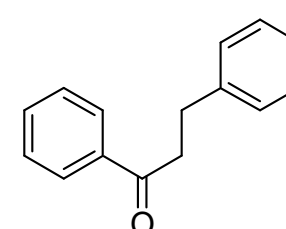
izoflawon



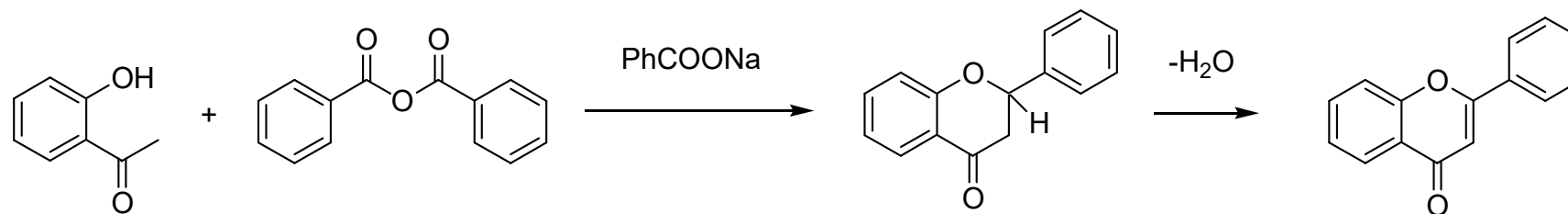
izoflawanon



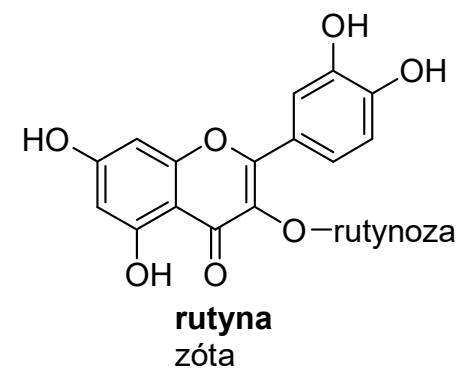
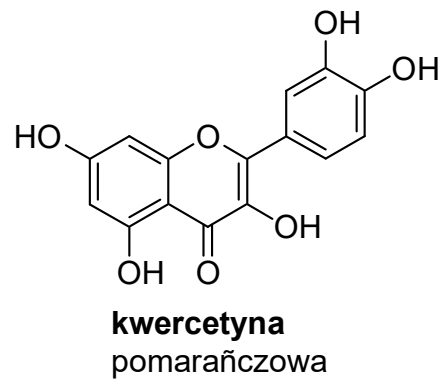
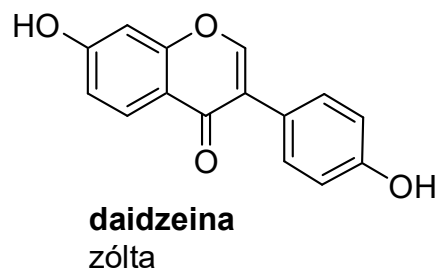
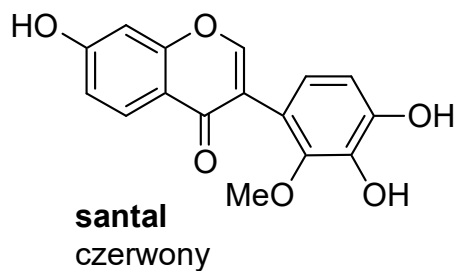
chalkon



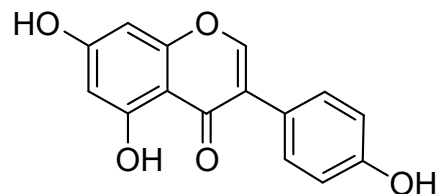
dihydrochalkon



Flawonoidy - znaczenie



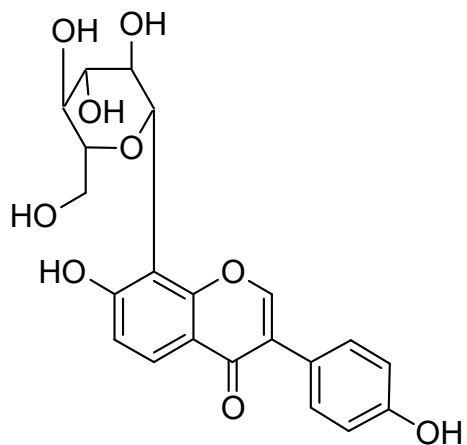
Flawonoidy - znaczenie



genisteina



560-3800 mg/kg



pueraryna



Kudzu Vine Pueraria Lobata

Flawonoidy – szkodliwe działanie

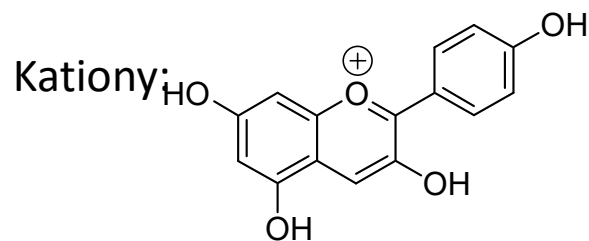
Tanzy –macylohydrolaza taniny (pozyskiwana z kropidlaków)

Propolis – aktywność do 2 lat

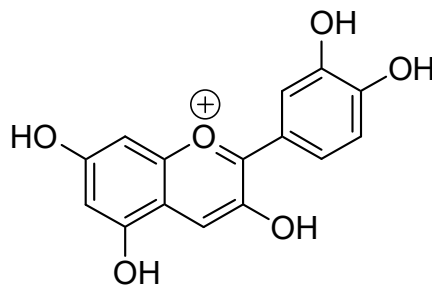
- Taniny w winie
- Garbowanie skór

Antocyjaniny (antocyjany)

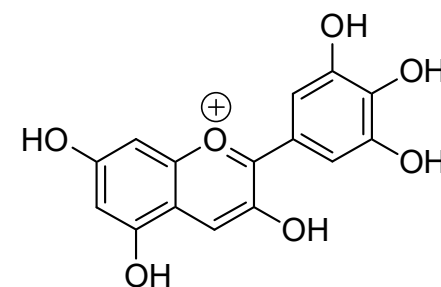
Antocyjaniny przykłady



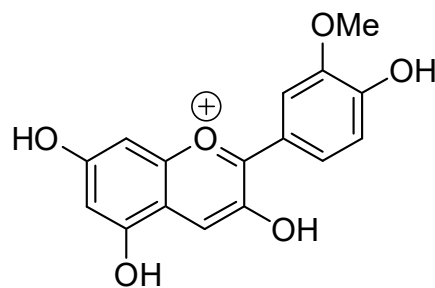
pelargonidyny



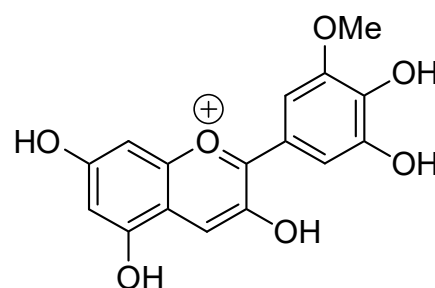
cyjanidyny



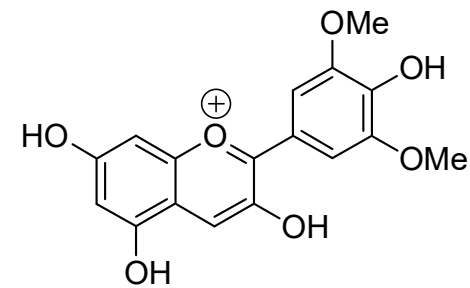
delfinidyny



peonidyny

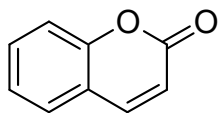


petunidyny

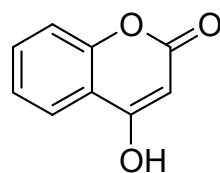


malwidyny

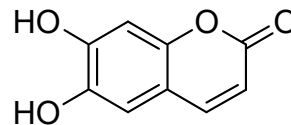
Hydroksykumaryny



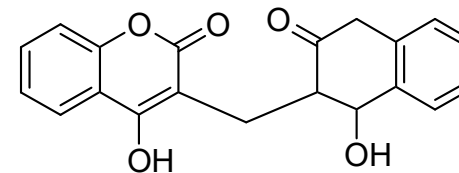
kumaryna



4-hydroksykumaryna



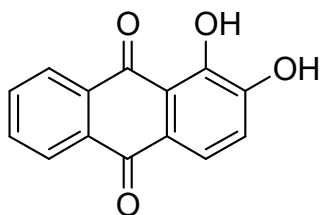
aeskuletyna



dikumarol

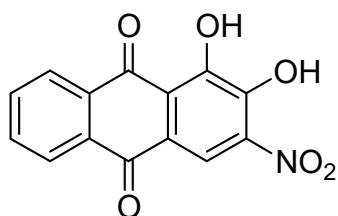
W 2010 w USA FDA zakazała importu żubrówki

Hydroksyantrachinony

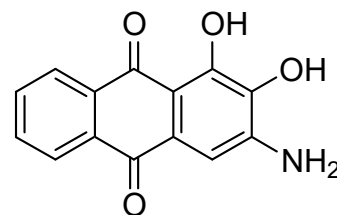


alizaryna

czerwony barwnik

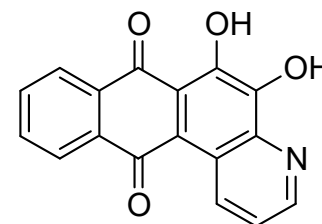


oranz alizarynowy



gliceryna

H₂SO₄



blekit alizarynowy