

FACULTY OF PHARMACY

Anthocyanidins, catechins & phytoalexins

Cont. Flavonoids

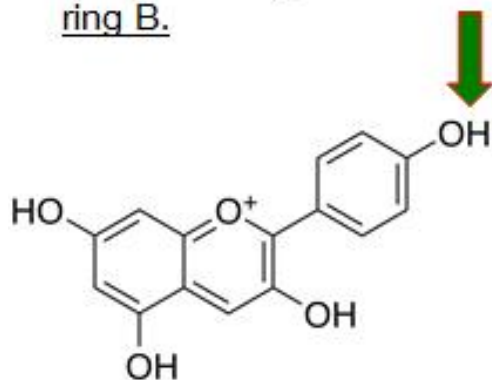
Dr. Yousef Abusamra



Drugs containing anthocyanidins

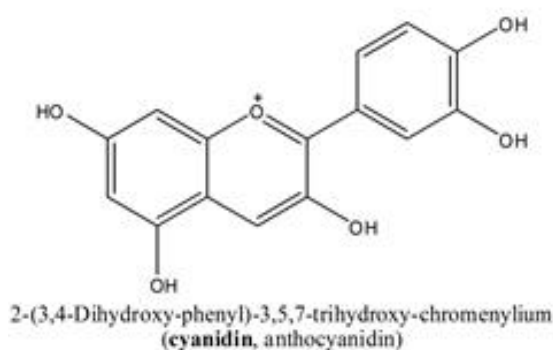
1. Pelargonidin:

- This glycoside is found in the flowers of *Pelargonium* (Fam. *Geraniaceae*), and it contains a hydroxyl group on the benzene ring B.



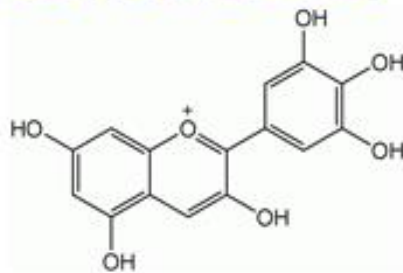
2. Cyanidin:

- Is found in **cornflowers** and it has 2 hydroxyl groups on benzene ring B.



3. Delphinidin:

- It occurs in the plants *Delphinium* and *Viola* species.
- This glycoside contains 3 hydroxyl group on benzene ring B.

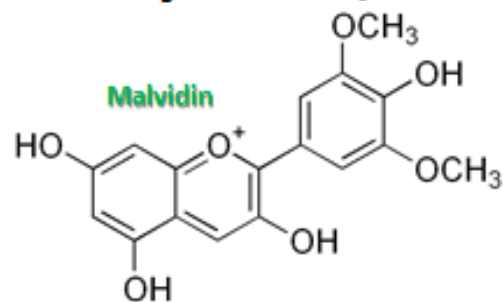


4. Malvidin: Blue Berry, Bilberry, European Berry (*Vaccinium myrtillus*):

- The blue is used by the pharmaceutical industry for the extraction of anthocyanin.
- Blue berry is rich in phenolic acids, flavonoids (hyperin, quercetin) and anthocyanin 0.5% such as cyanidin, delphinidin and malvidin.

Pharmacological activity:

- Blue berry anthocyanins have:
 1. Vascular protection.
 2. Antioedemic effect.
 3. Anti-inflammatory effect.
- Clinically, it is used for eye disease such as retina bleeding risk.
- It has a free radical-scavenging activity (Anti-oxidant).



- It alleviates the cognitive decline occurring in Alzheimer disease and other conditions of aging.
- It prevents urinary tract infection.
- It lowers cholesterol and total lipid levels.

Vaccinium myrtillus



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THE ANTI-HYPERTENSIVE EFFECT OF:

Roselle (*Hibiscus subdariffa*) **كر كديپه :**

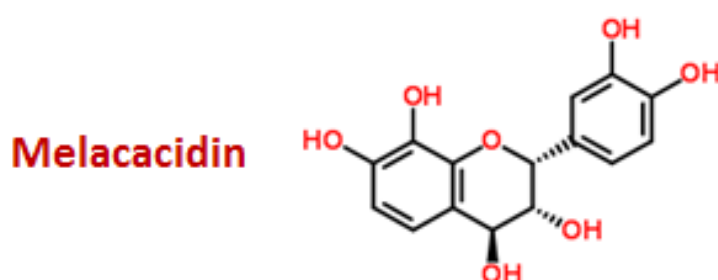
- The part used is the **calyx** (cup) of **flowers**, which is widely used for **hypertension**.
- This is due to angiotensin-converting enzyme activity (ACE Inhibitor) due to **delphinidin-3-O-sambubioside** and **cyanidin-3-O-sambubioside**.



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Leucoanthocyanidins

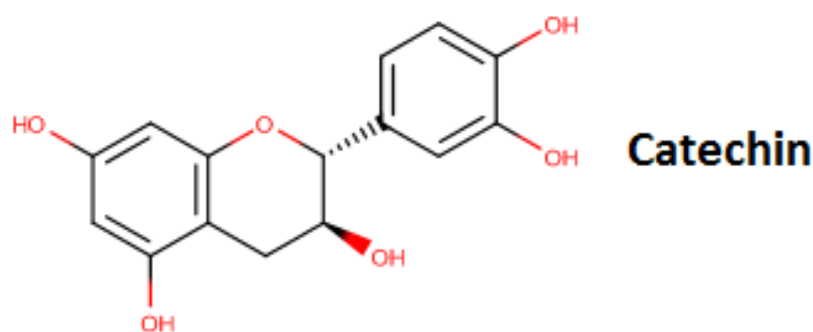
- Leucoanthocyanidins are a group of water-soluble plant pigments, very closely related to anthocyanidins.
- They are converted to the related anthocyanidins **when boiled with aqueous or alcoholic HCl acid**.
- Chemically, they are **flavan-3,4-diols** like **melacacidin** from Acacia species.



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• Catechins:

- Catechins are **flavan-3-ol** derivatives.
- Catechin itself is **3,5,7,3',4' pentahydroxyflavan**.



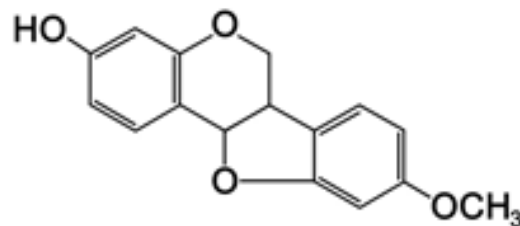
- It is one of the most widely occurring flavonoids and is optically active.
- Catechin is found in **tea** {*Thea senensis*}.
- It has **heart-protective effect**.

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- **Phytoalexins:**

- They are antibiotics produced by plants that act as toxins against the attacking organisms.

1. **Pterocarpans:** Like **medicarpin** and **pisatin**.



Medicarpin

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2. **Rotenone:**

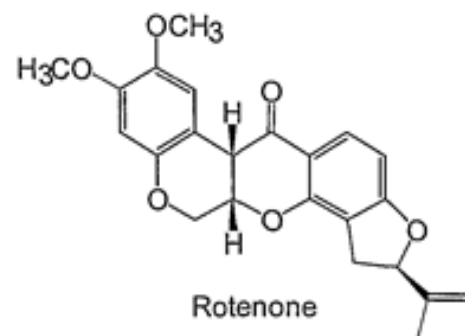
➤ {Is an odorless, colorless, crystalline **isoflavone** used as a broad-spectrum **insecticide**, **piscicide** مبيد للأسماك, and **pesticide**}.

➤ Found in **Derris** and **Lonchocarpus** species of Derris.

➤ They are **insecticide**.

➤ Roots from both plants contain 3-5 % of rotenone, and are also **used** as **fish poisoning material**.

➤ They are not toxic to humans are metabolized rapidly after ingestion.



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Lonchocarpus



Derris



Dr. Yousef Abusamra