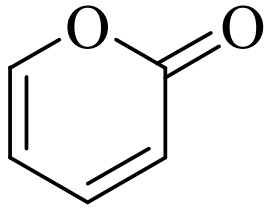


Chemistry of Natural Products (CHEM-479)

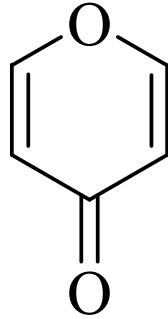
Online Lectures (Flavonoids)

Dr Abdul Rauf Raza
(*Associate Professor*)
Department of Chemistry
University of Sargodha, Sargodha

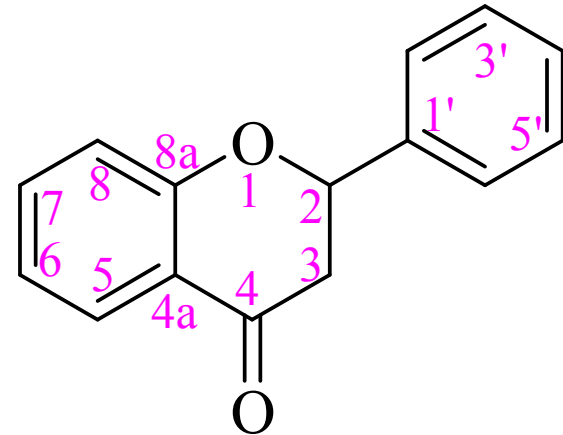
Structure of Flavonoids



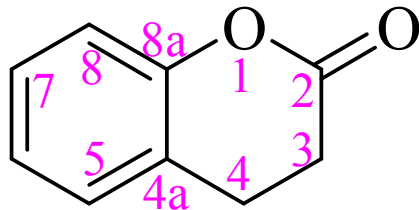
1 (α -Pyrone)
(Oxin-2-one)



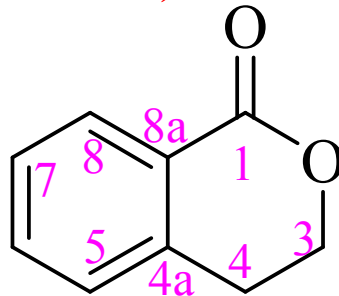
2 (γ -Pyrone)
(Oxin-4-one)



5 (Flavonoid)
(2-Phenyl-1-benzoxin-4-one)



3 (Coumarin)
(1-Benzoxin-2-one)



4 (Isocoumarin)
(2-Benzoxin-1-one)

2% of all C compounds are involved in photosynthesis. Flavonoids are usually coloured and less often colourless.

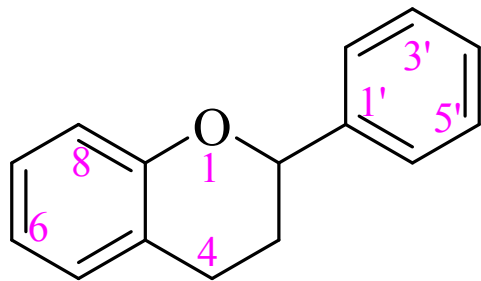
Flavonoids (Coloring Pigments)



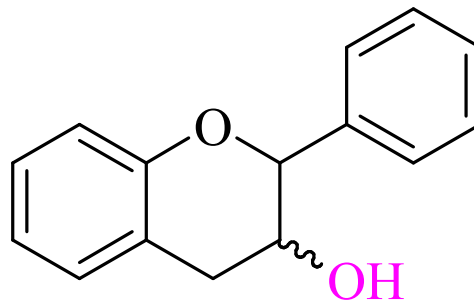
Fruit of Blueberry



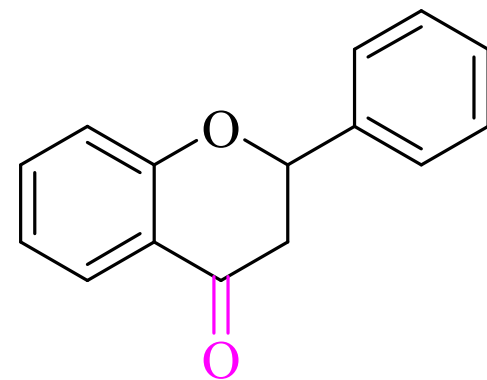
Classification of Flavonoids



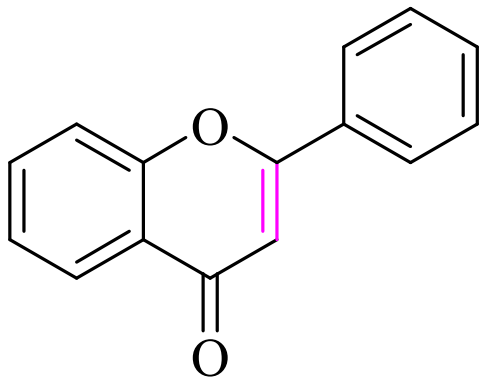
1 (Flavan)



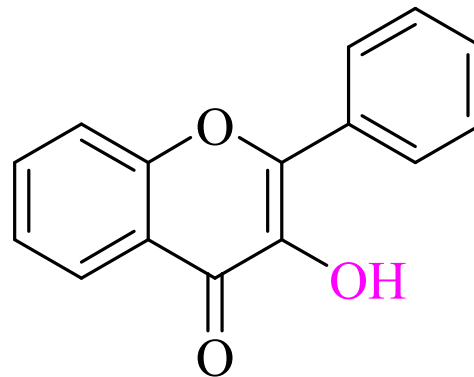
2 (Catechin)



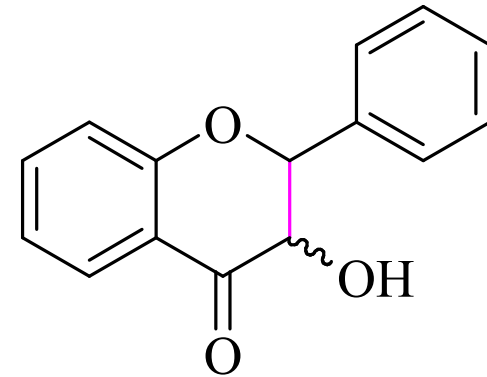
3 (Flavonone)



4 (Flavone)

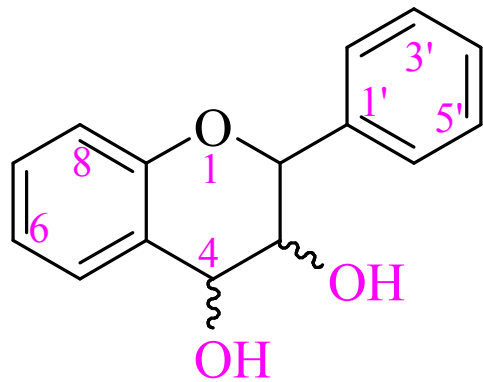


5 (Flavonol)

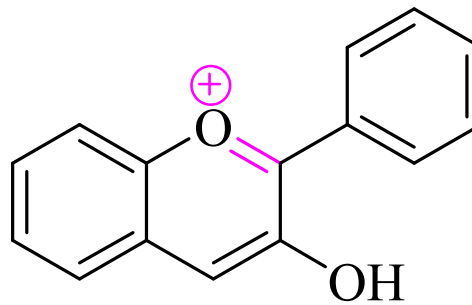


6 (Flavonolol)

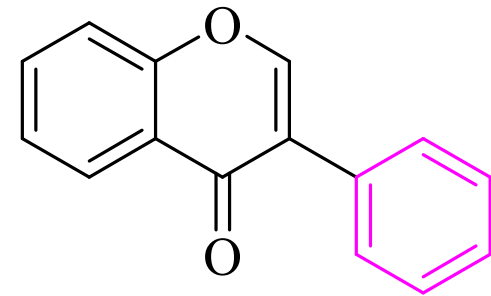
Classification of Flavonoids



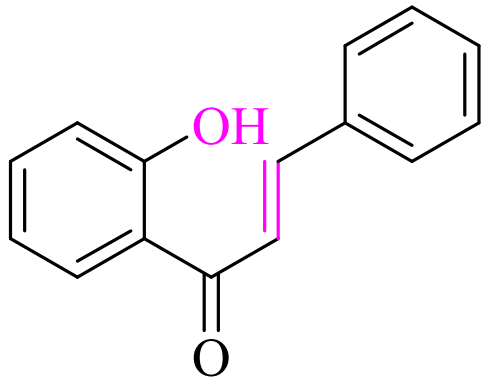
7 (Proanthocyanidine)



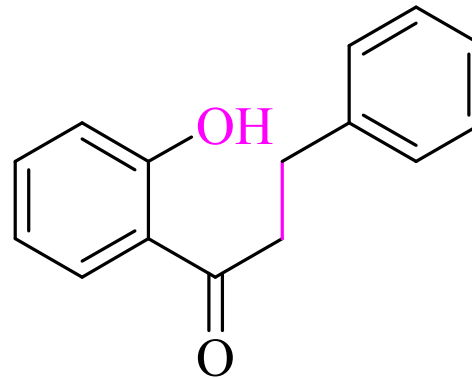
8 (Anthocyanidine)



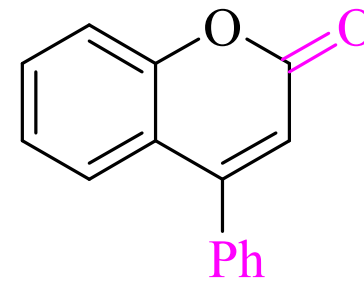
9 (Isoflavone)



10 (Chalcone)

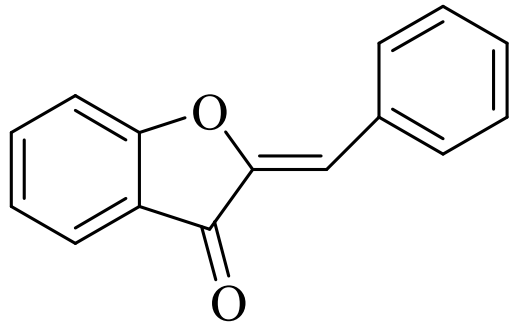


11 (Dihydrochalcone)

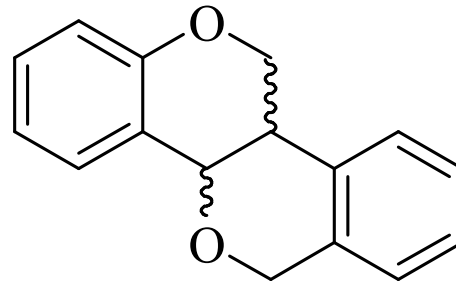


12 (Neoflavone)

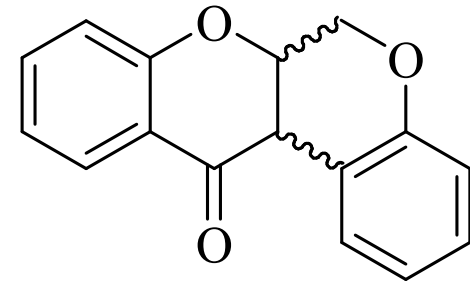
Classification of Flavonoids



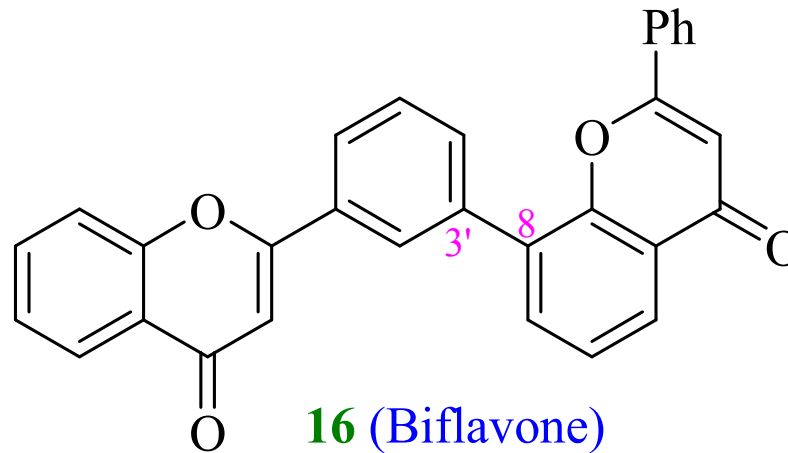
13 (Aurone)



14 (Pterocarpane)

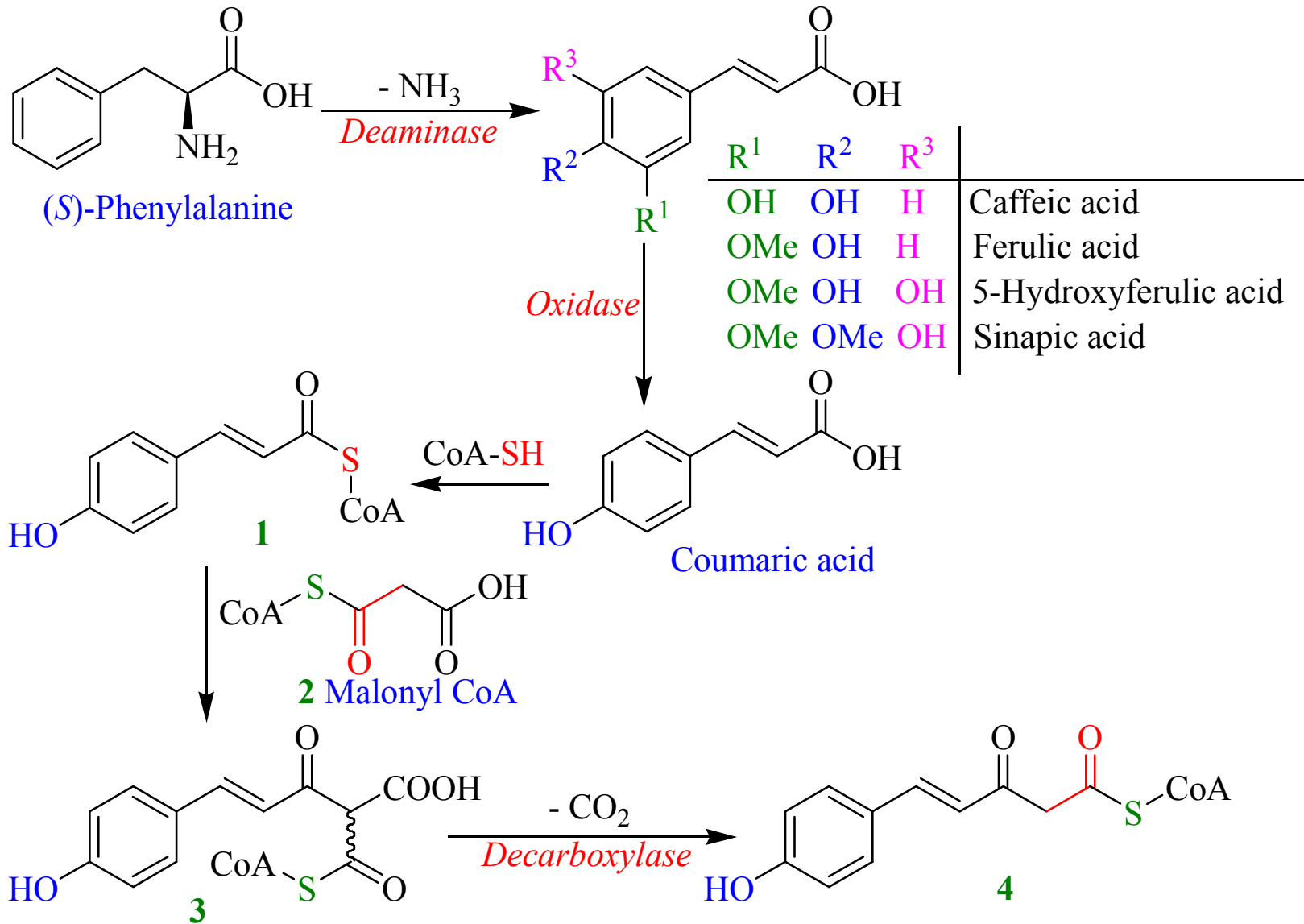


15 (Rotenoid)

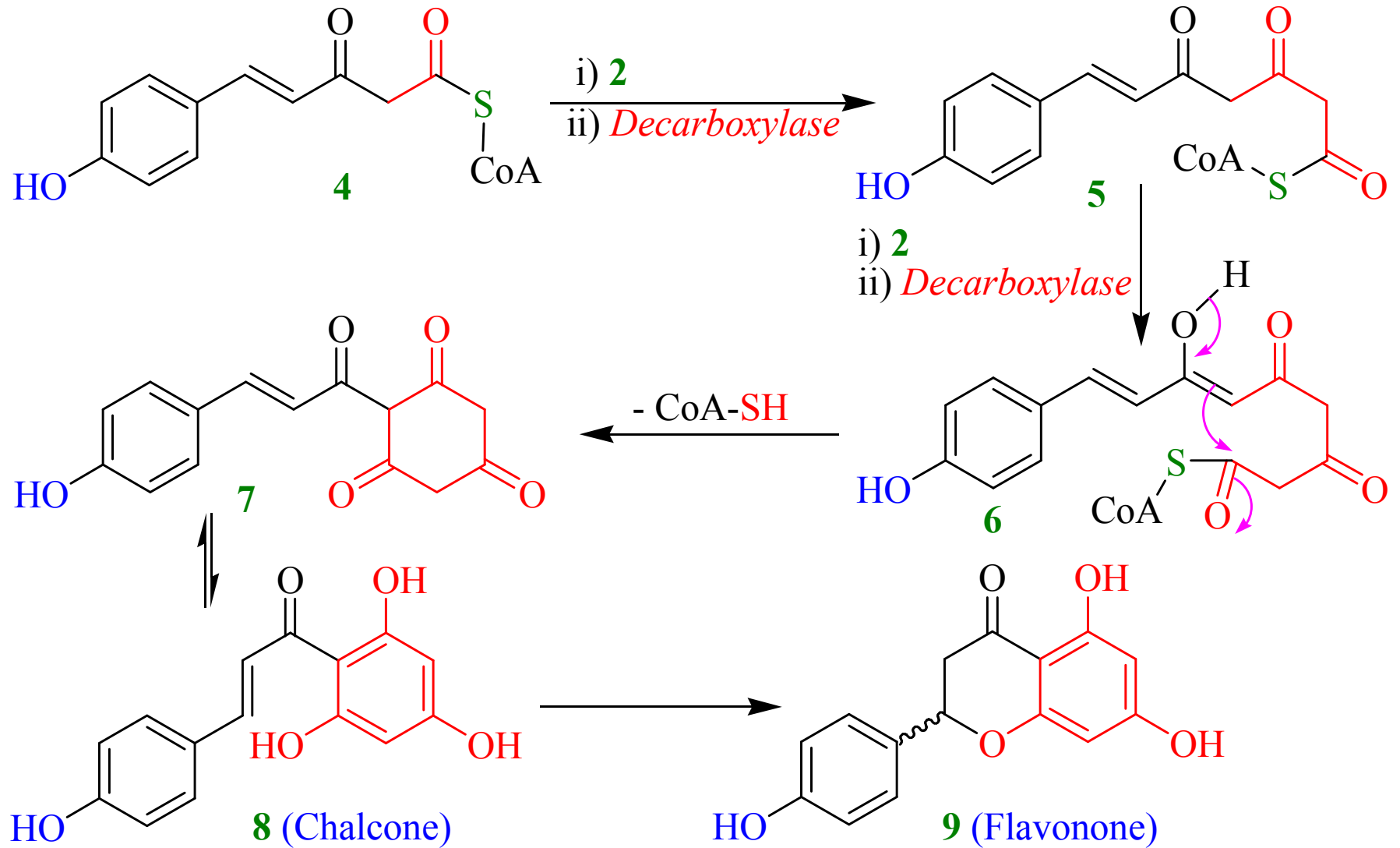


16 (Biflavone)

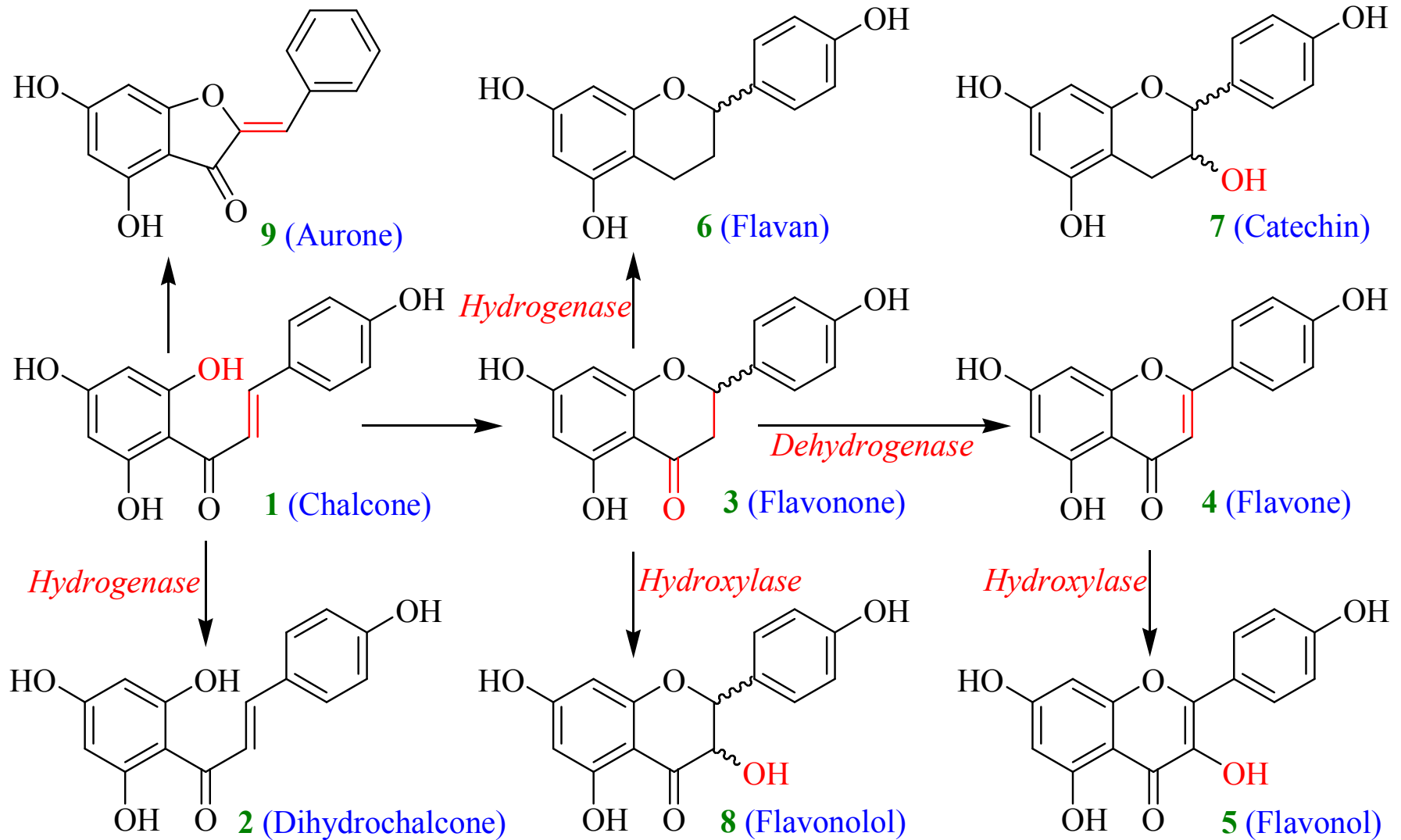
Biosynthesis of Flavonoids



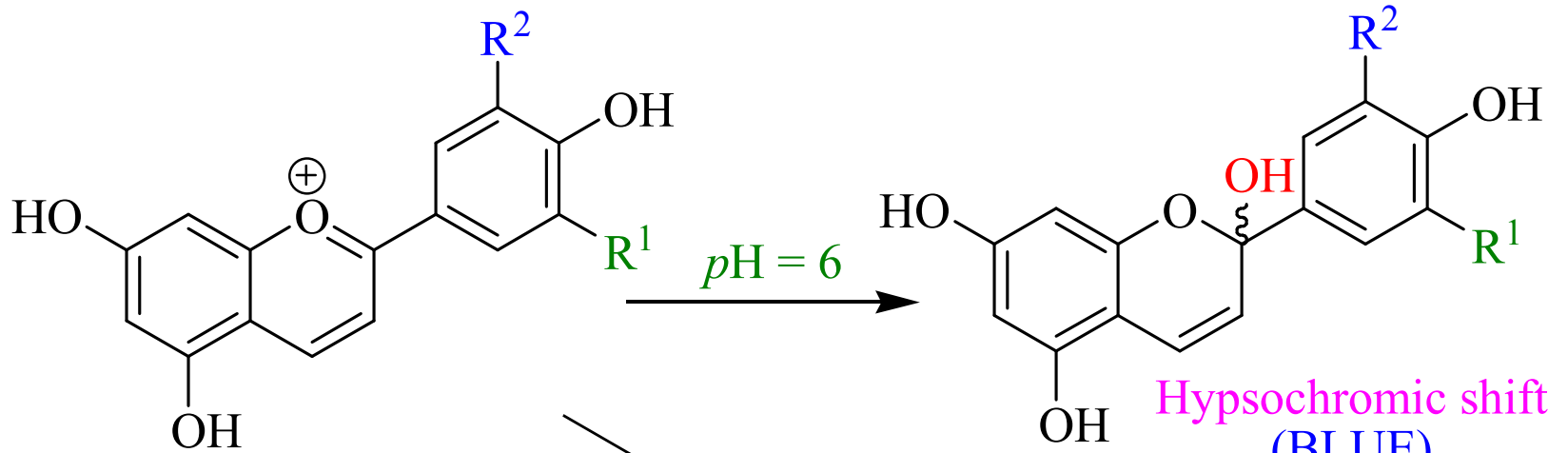
Biosynthesis of Flavonoids



Biosynthesis of Flavonoids

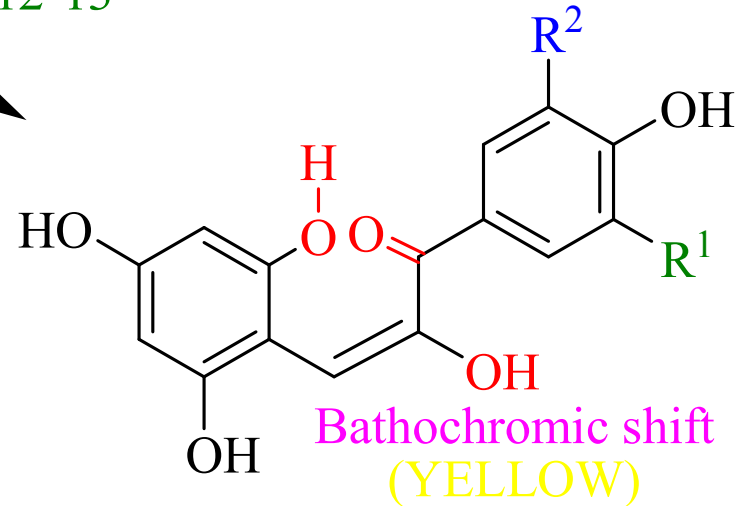


Anthocyanidine

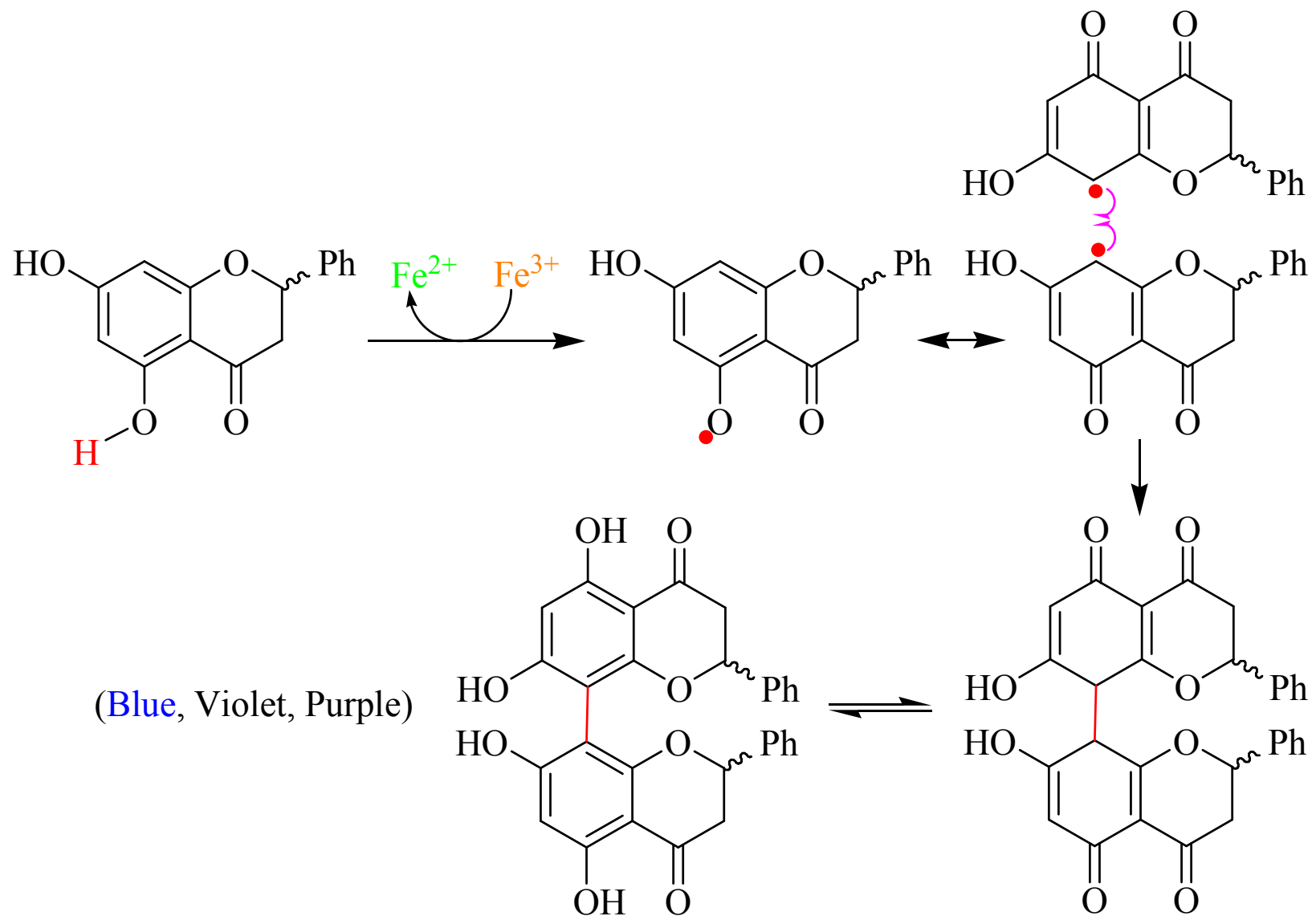


| R^1 | R^2 | |
|-------|-------|--------------|
| H | H | Ptergonidine |
| OH | H | Cyanidine |
| OH | OH | Delphinidine |
| OMe | H | Peonidine |
| OMe | OH | Peturidine |
| OMe | OMe | Malvidine |

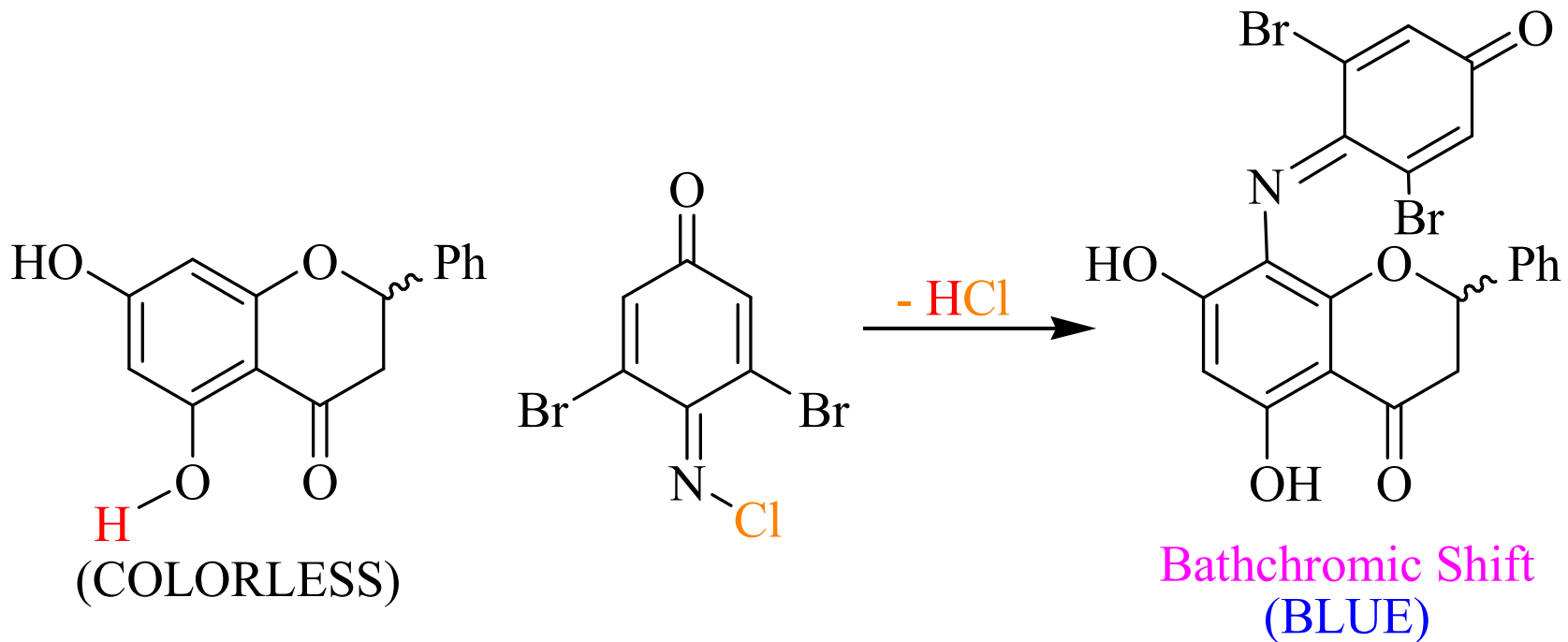
$\text{pH} = 12-13$



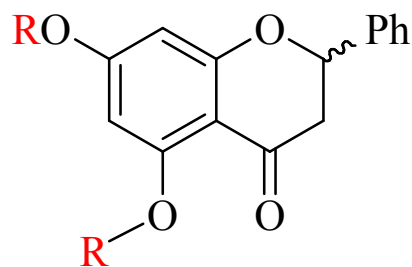
Flavonoid Testing (FeCl_3)



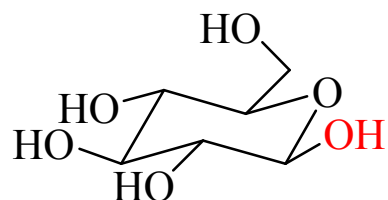
Flavonoid Testing (Gibb's Test)



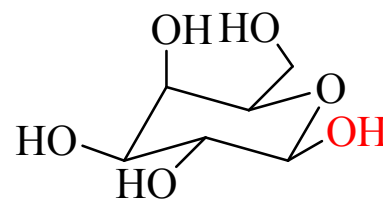
Glycosidal Flavonoids



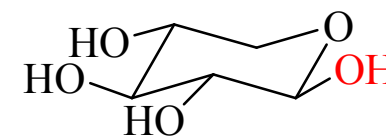
R = Alkyl (Me, Et, Bn etc.)
 Acyl (Ac, Bz etc.)
 Glycosides



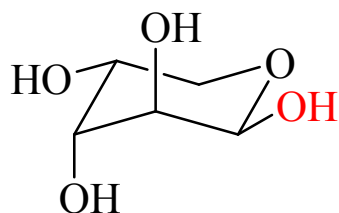
(D)-Glucose



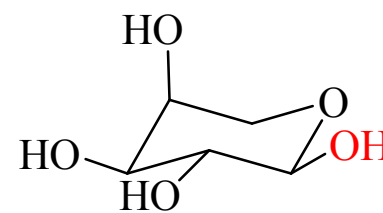
(D)-Galactose



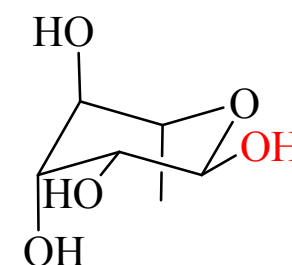
(D)-Xylose



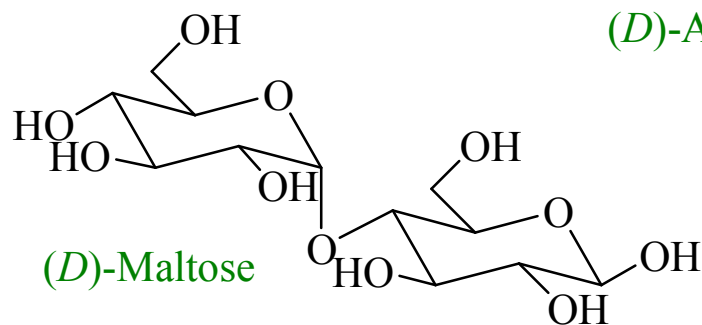
(D)-Arabinose



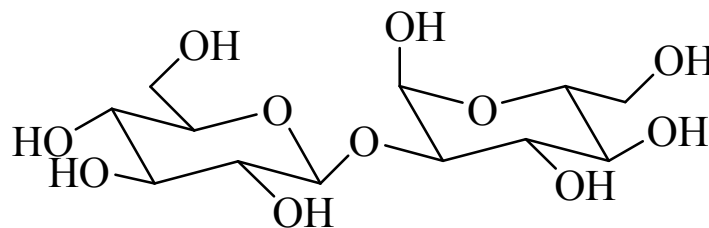
(L)-Arabinose



(D)-Rhamnose



(D)-Maltose



(D)-Sophorose