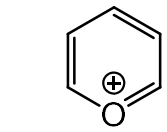
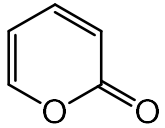
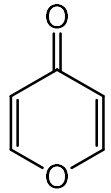
9. Pierścienie sześcioczłonowe z jednym heteroatomem, kationy piryliowe i pirony



kation piryliowy

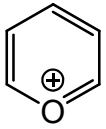


2-piron

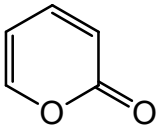


4-piron
(chromon)

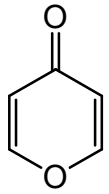
9.1. Kationy piryliowe i pirony - **przykłady**



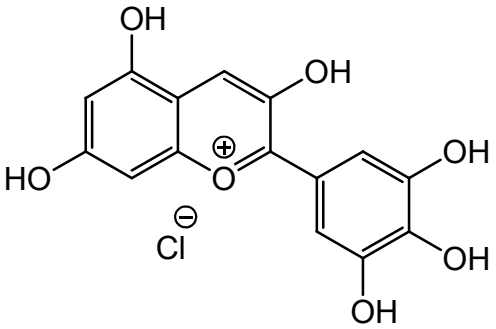
kation piryliowy



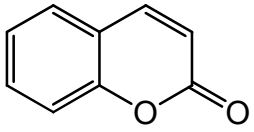
2-piron



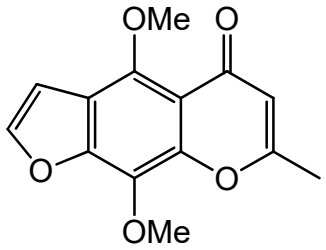
4-piron
(chromon)



delfinidyna
niebieski barwnik płatów kwiatowych

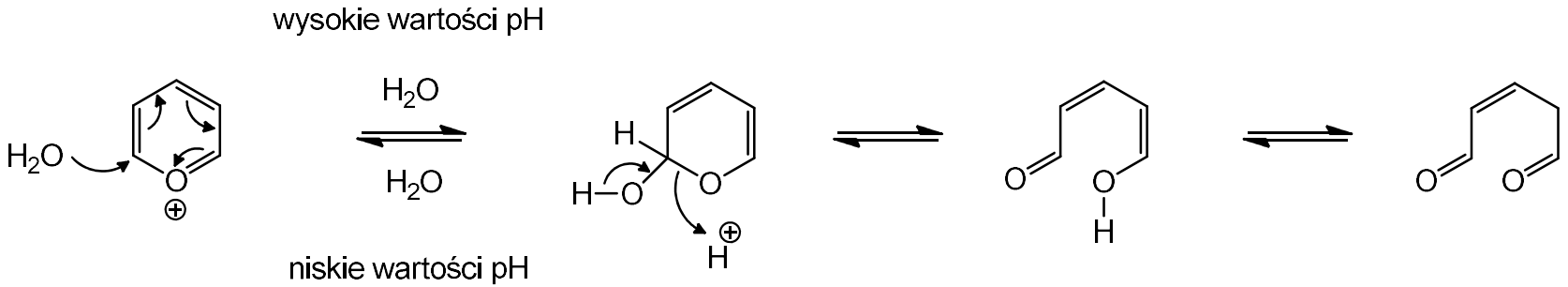


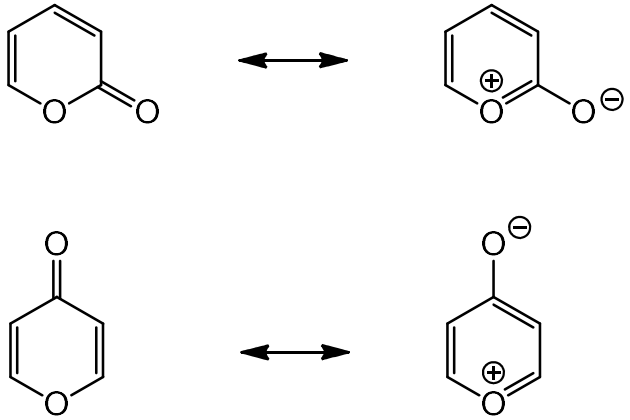
kumaryna
olejek lawendowy i ponad 60 innych roślin



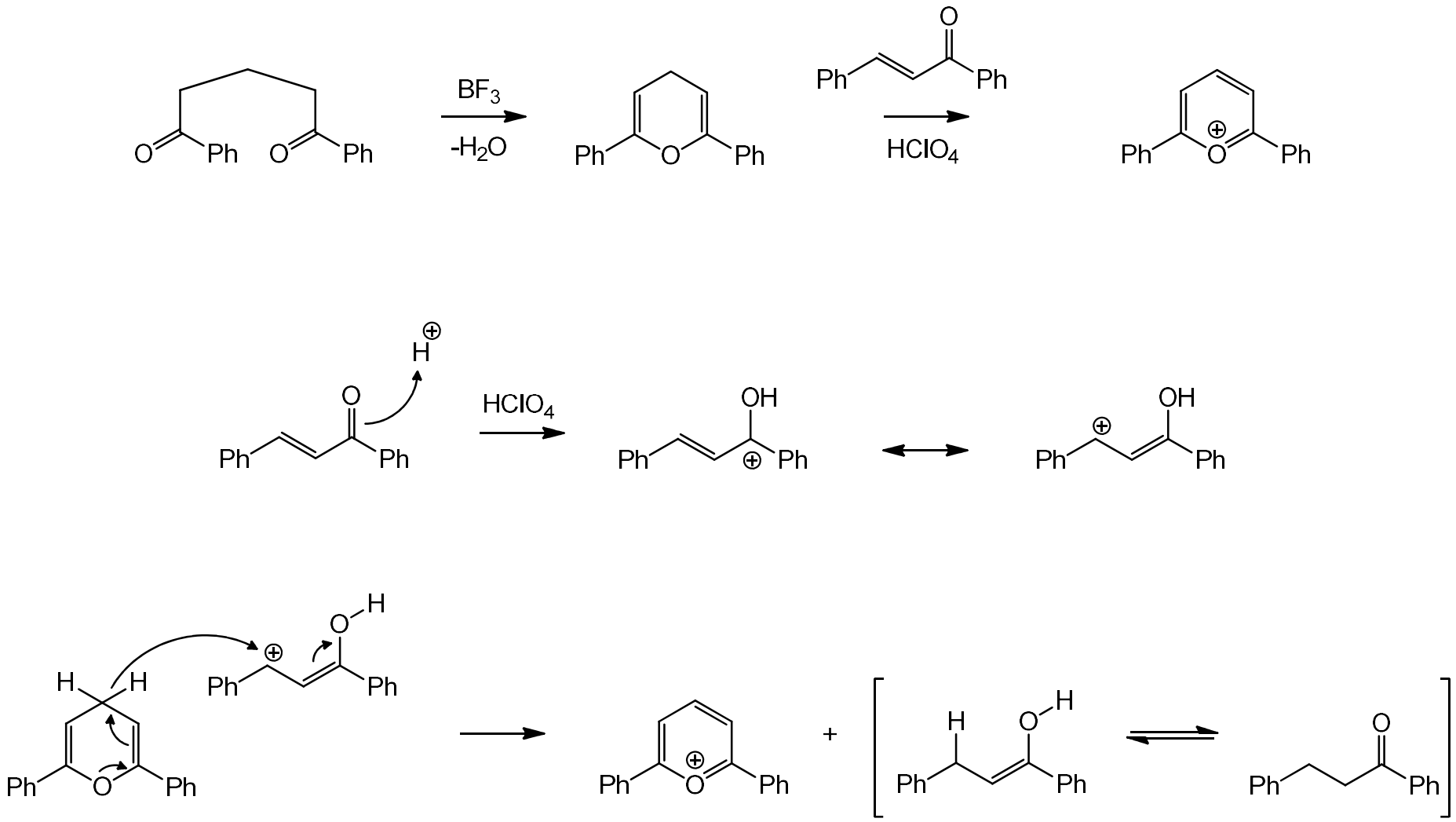
kellina
produkt naturalny, lek przeciwastmatyczny

9.2. Kationy piryliowe i pirony – trwałość kationu piryliowego, tutomeria pironów

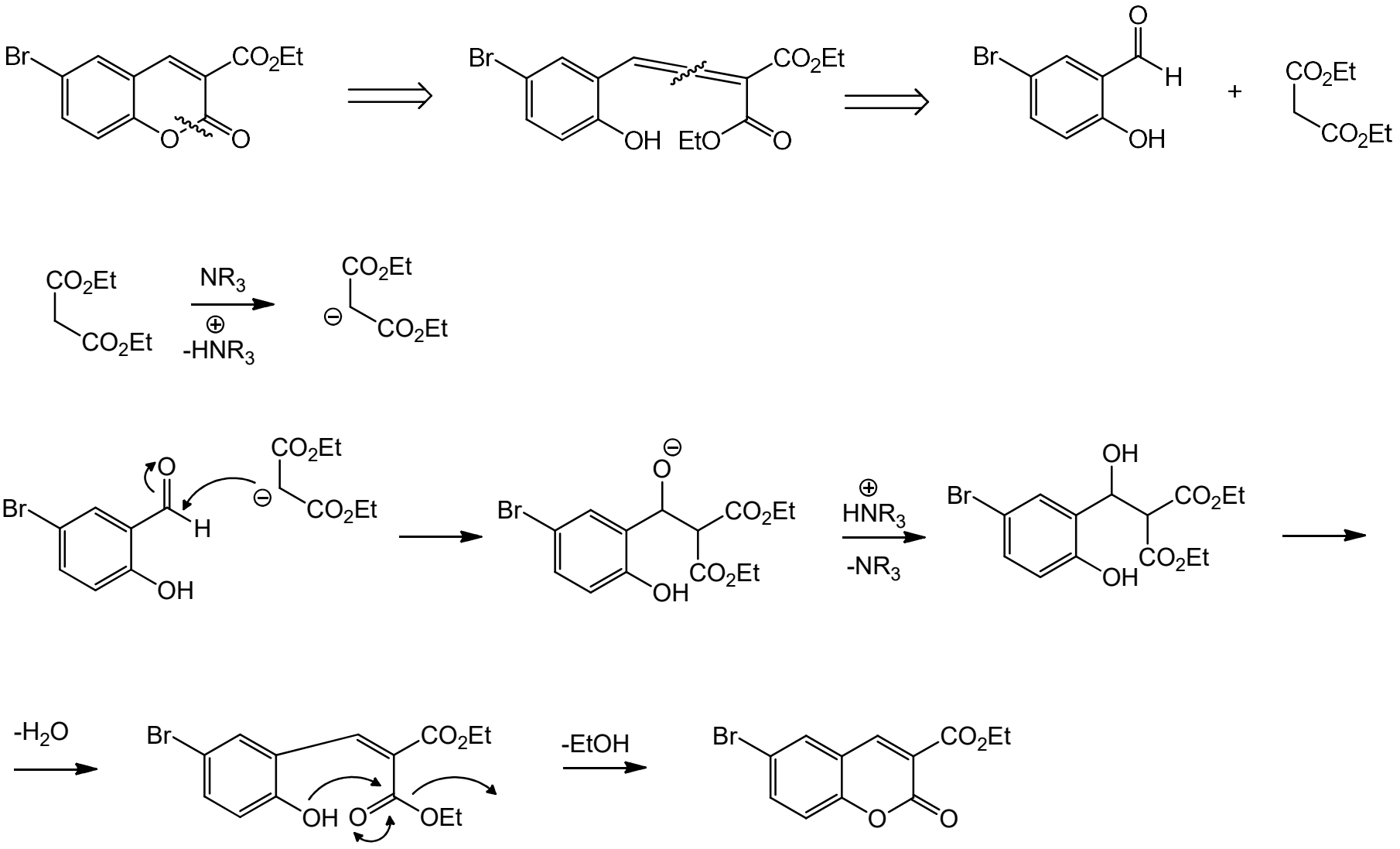




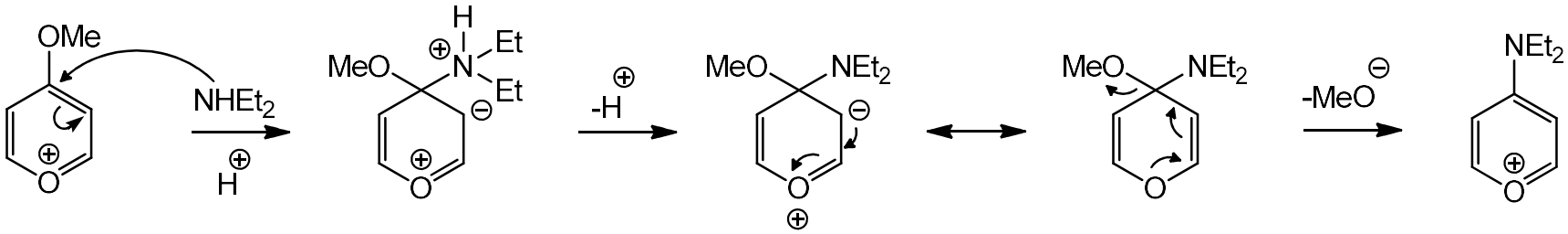
9.3. Kationy piryliowe i pirony - otrzymywanie kationów piryliowych, przykład



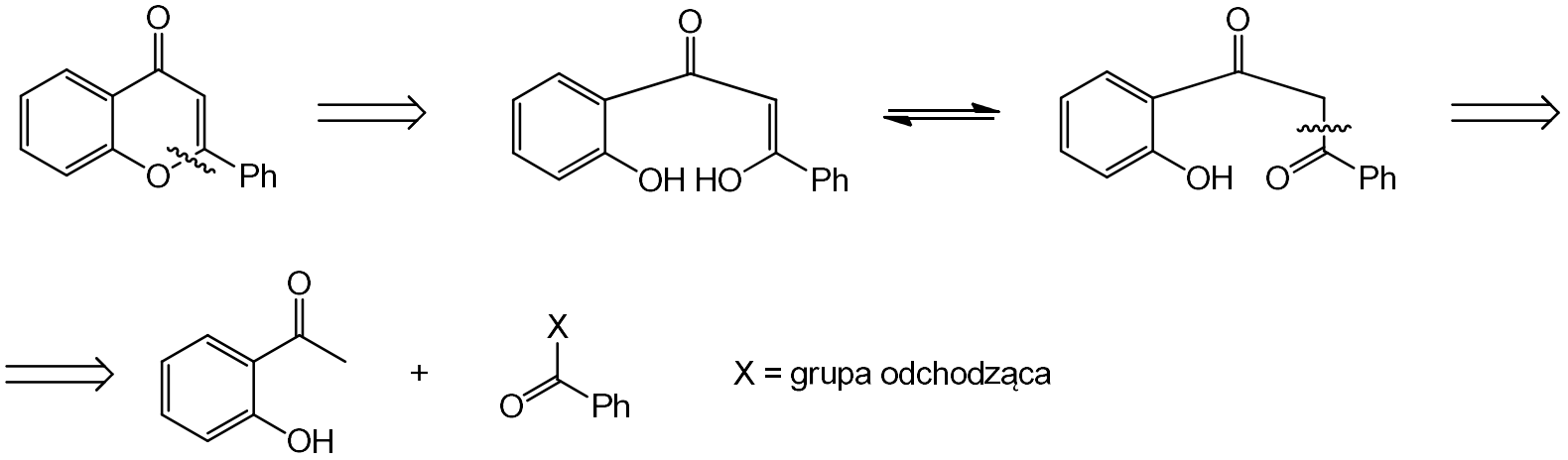
9.3. Kationy piryliowe i pirony - otrzymywanie kumaryn



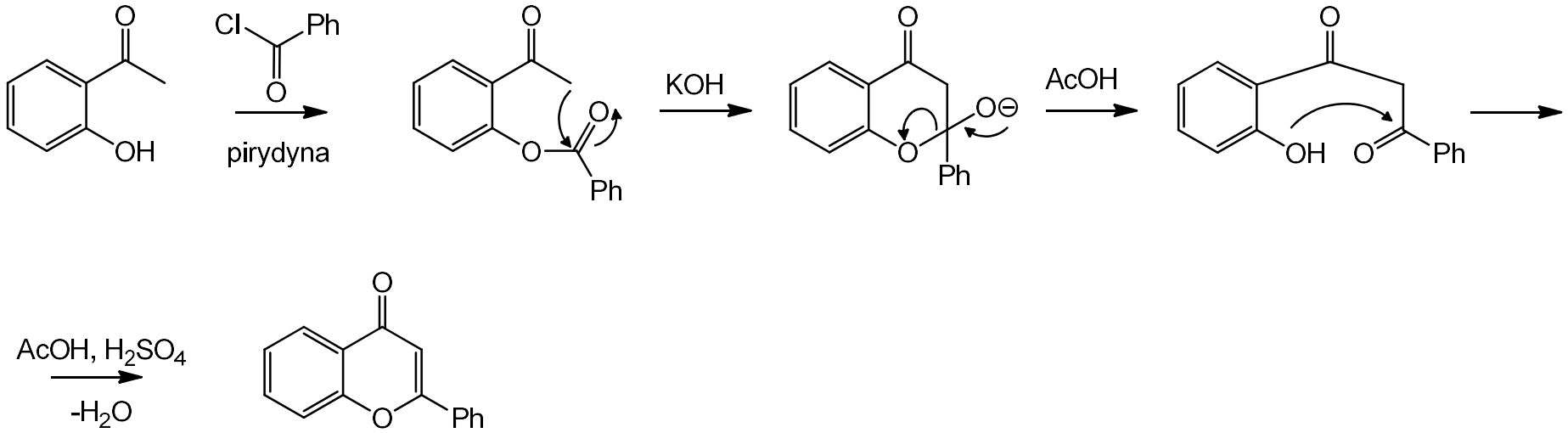
9.4. Kationy piryliowe i pirony - reakcje z nukleofilami, substytucja nukleofilowa w kationach piryliowych



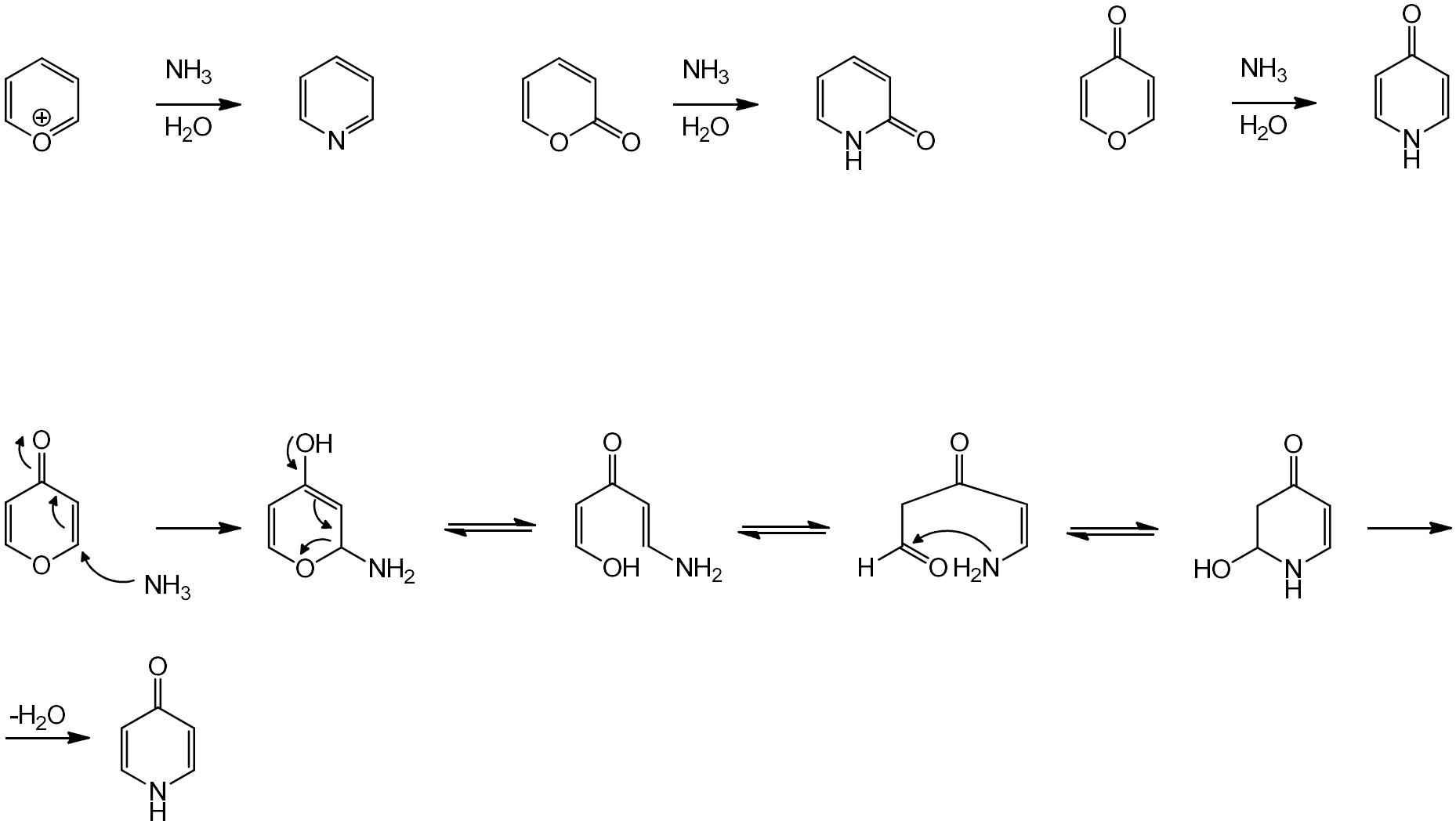
9.5. Kationy piryliowe i pirony - otrzymywanie chromonów



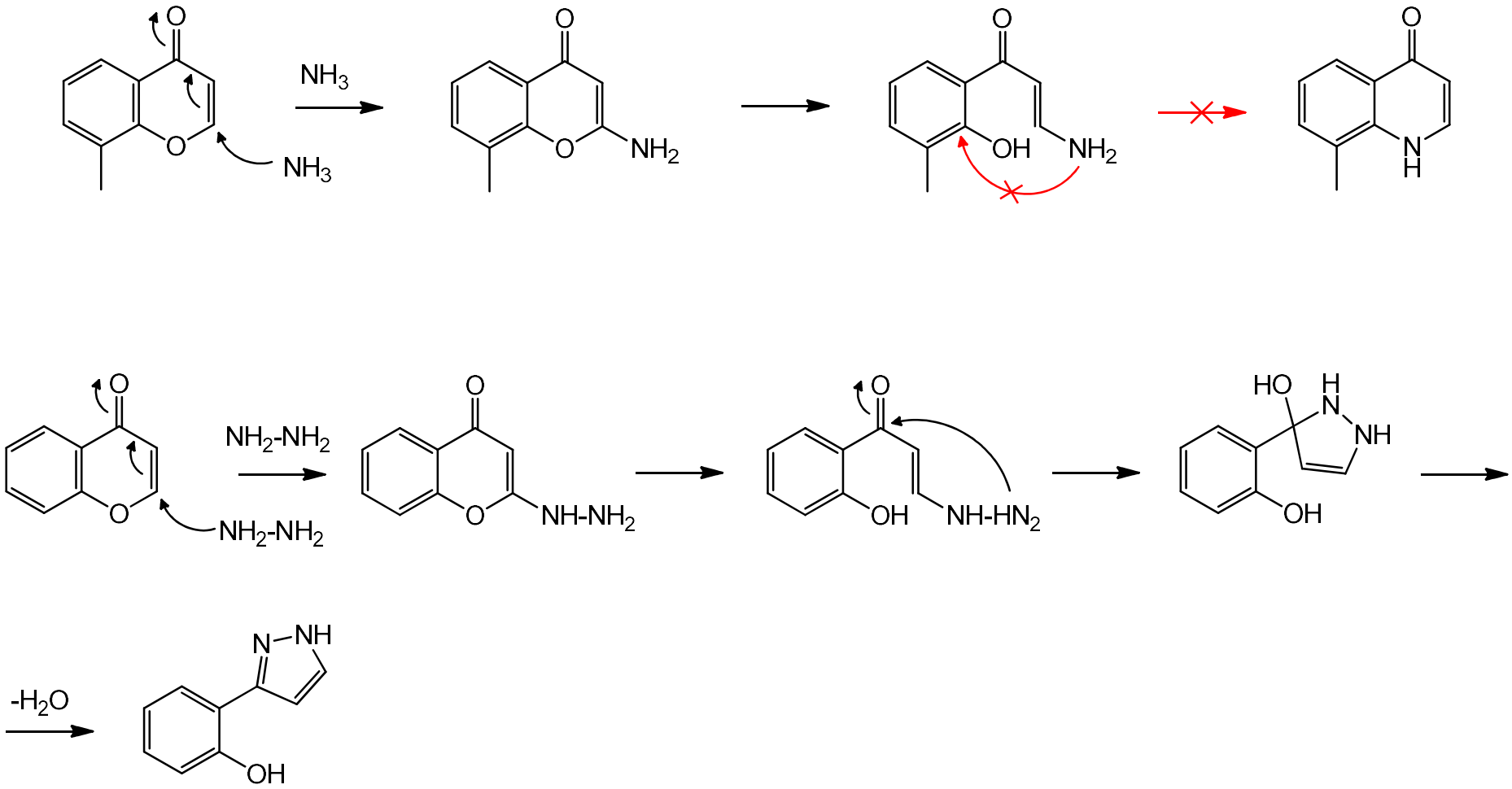
Metoda Kosteckiego-Robinsona



9.6. Kationy piryliowe i piryny - reakcje z nukleofilami, wymiana endocyklicznego atomu tlenu na atom azotu



9.7. Kationy piryliowe i pirony - reakcje z nukleofilami, otwierania benzopironów



9.8. Kationy piryliowe i pirony - metyloaminowanie benzopironów, reakcja Mannicha