

Introduction

Medicinal Chemistry — identification, synthesis + development of new drugs for treating disease

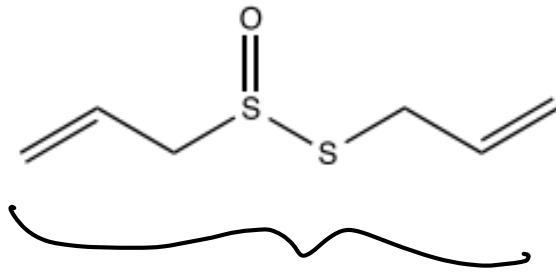
Pharmacology — how drugs interact with a biological system

Drugs — compounds that interact with a biological system to produce a biological response

History

historically people used plants as drugs

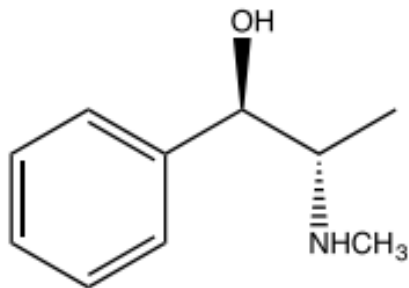
Ancient Egypt; Eber's Papyrus ← 1500 BC > 850 plant medicines



- garlic + onions for infection

allicin (antibiotic + antifungal)

Ancient China; The Pen T-Sao ~ 2000 BC ~ 350 plants drugs



← from ephedra

← ephedrine

→ Ma Huang

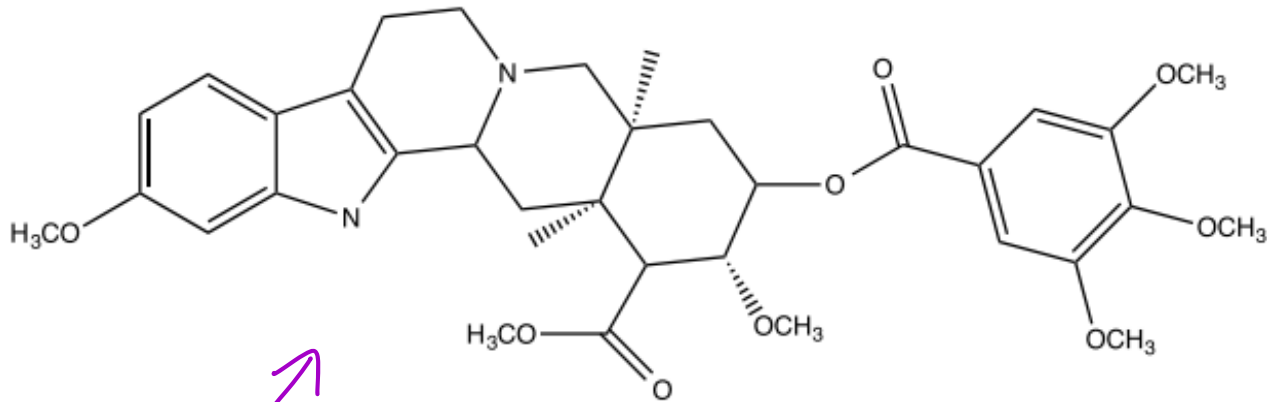
- coughs

- heart stimulant

↑ increase BP
acts on $\alpha + \beta$ ← Bronchodilation

adrenergic receptors

India; Rig Veda



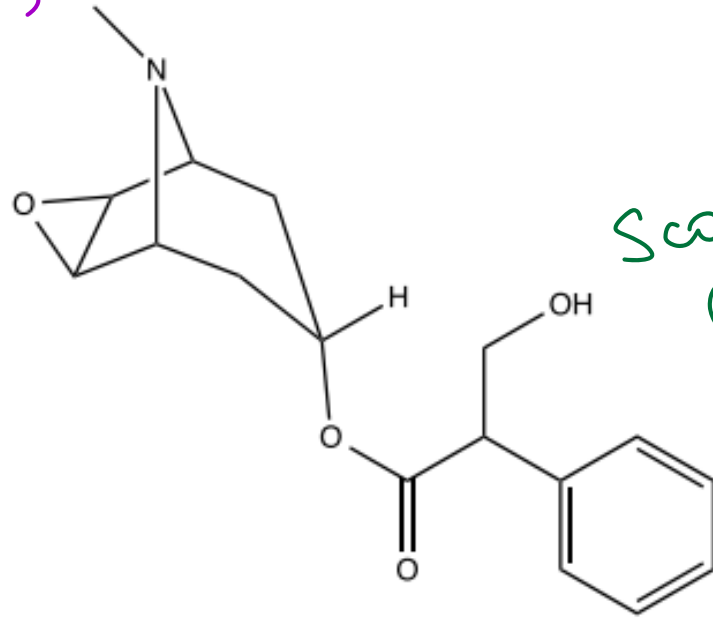
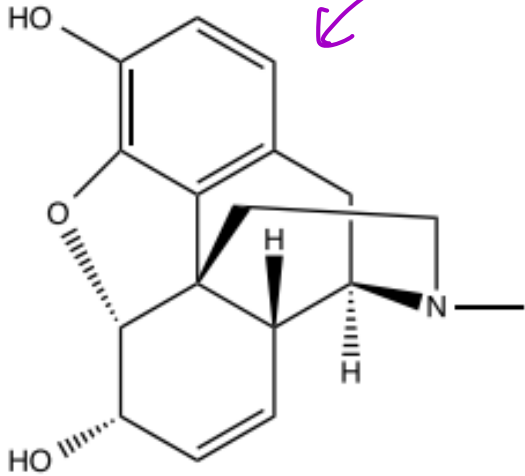
reserpine
Can be used for
schizophrenia

comes
from
Snake root

for mental
illness
and as sedative

Greeks : Opium Poppies....

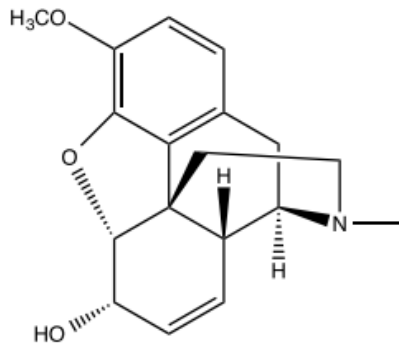
morphine; isolated from opium poppies



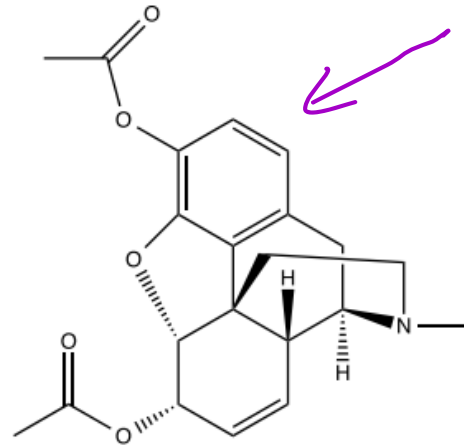
Scopolamine (nausea)

*henbane
deadly
nightshade*

codeine



*diacetylmorphine
heroin*



Hippocrates (460-337 BC)

Father of

Allopathic Medicine: using pharmaceutical medicine or physical intervention

System of 4 humors

Black Bile

Earth

Spleen

Yellow Bile

fire

liver

Blood

air

heart

Phlegm

water

brain

Galen (129-199 AD)

7350 books on medicine

Galenicals

drugs produced by extraction to make stable tincture

1493-1541

Paracelsus Swiss physician
Alchemist

Phillipus Aureolus
Theophrastus Bombastus
von Hohenheim

Claimed chemical processes were in body
+ you could use chemicals to fix them

Mercury	Volatilization	Spirit
Sulfur	Combustion	Soul
Salt	Solidification	Body

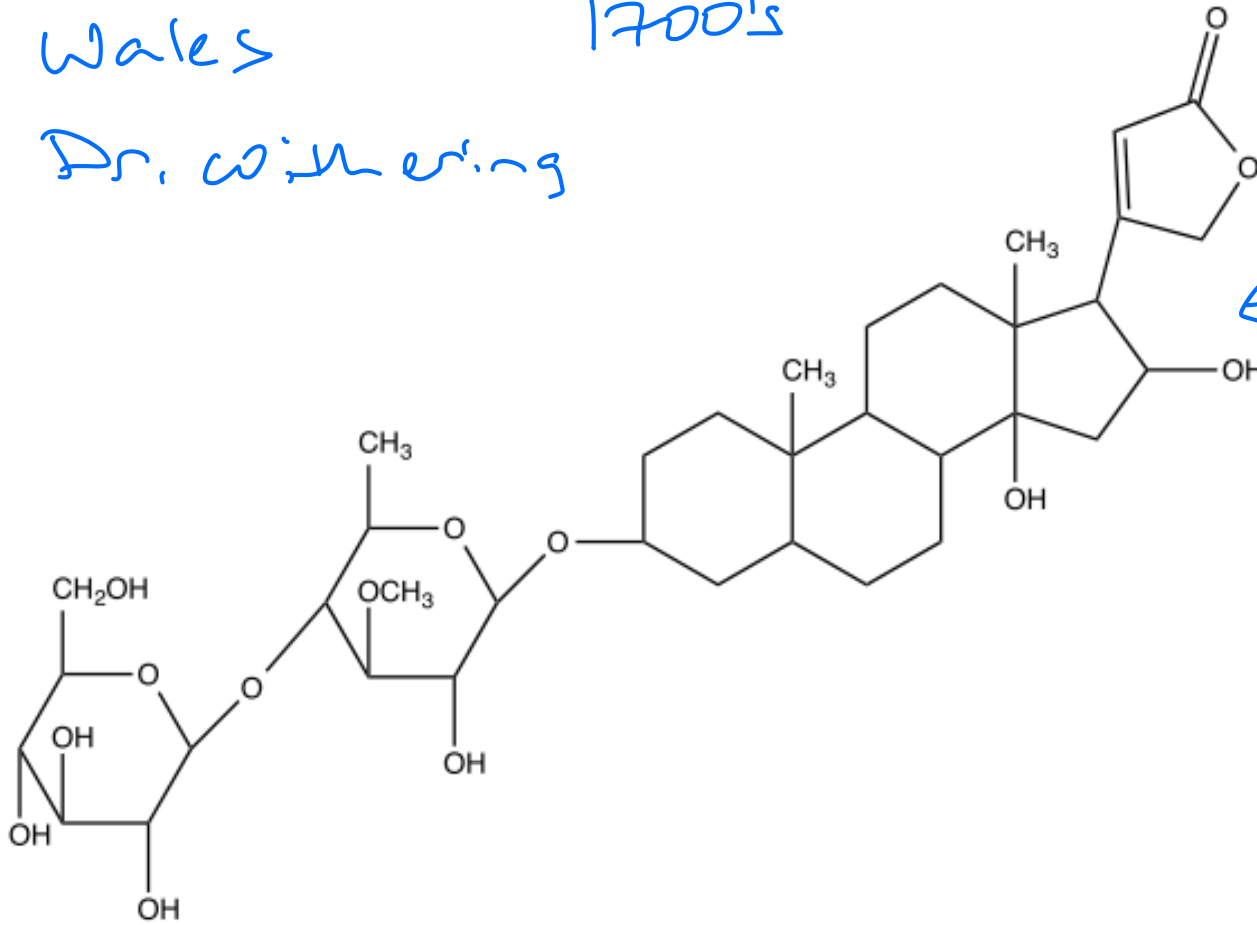
used Hg salts, blue vitriol (CuSO_4) lead acetate
antimony salts

↓
“If you want to explain any poison properly, what then isn't a
poison? All things are poison, nothing is without poison, the
dose alone causes a thing not to be poison”

Wales

1700's

Dr. Withering



← digitalis
from
foxglove
for
Dropsy

father
of chemotherapy

1854-1915

Erlich's Principle of Chemotherapy

Postulated the existence of chemoreceptors

"magic bullet" that could kill bacteria +
not a host

first synthetic
antimicrobial
Arsphenamine
(Syphilis +
sleeping
sickness)

