

Ethnobotany. Lecture 29

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Outline

- 1 Pharmacognosy
 - Plant remedies for respiratory system
 - Plant remedies for nervous system; stimulants



Pharmacognosy

Plant remedies for respiratory system



Ipecac, *Cephaelis* (*Psychotria*) spp., Rubiaceae, Central America

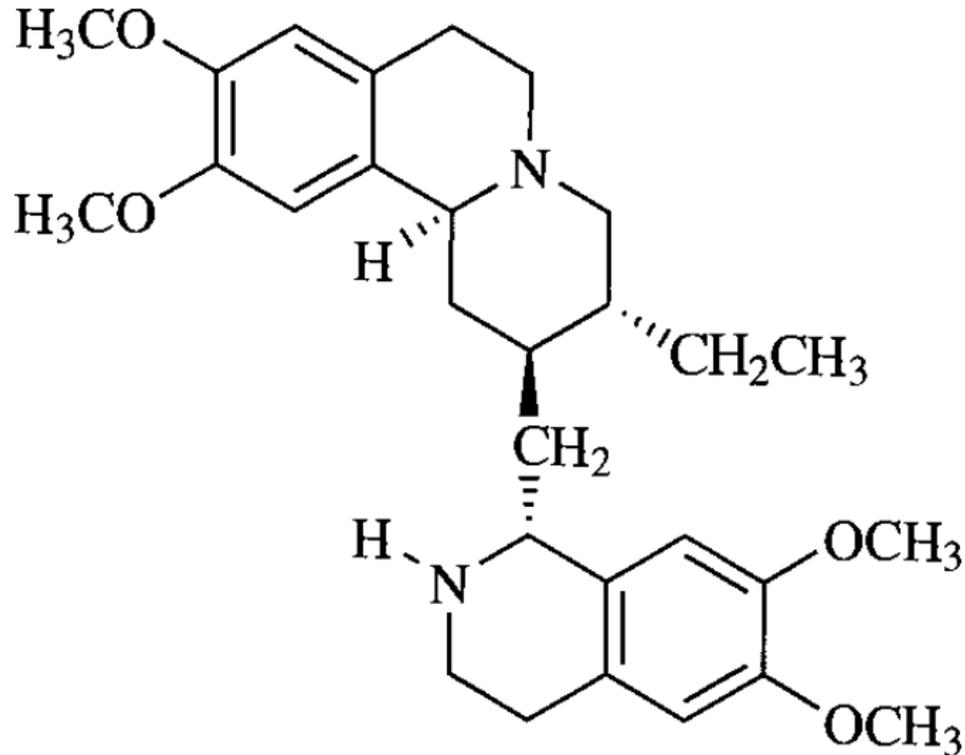
- *Ipecacuanhae radix*
- loquinoline alkaloids as emetine
- Has both mucolytic and emetic effects (frequently used as anti-toxic)



Ipecac



Emetine



Cough

- Normally a symptom of other diseases
- Suppression of brain nervous centers will reduce the cough

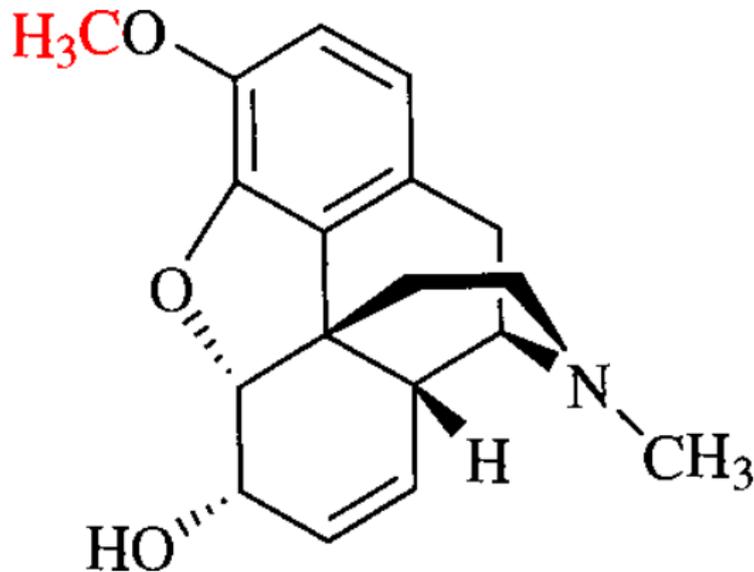


Opium poppy, *Papaver somniferum*, Papaveraceae, Asia

- Contain alkaloids codeine and morphine
- Codeine is toxic in large doses because of respiratory depression effect
- Morphine causes strong addiction and painful withdrawal syndrome
- Opioids mimic endogenous opioids: endorphins, enkephalins, dynorphins neurotransmitters



Codeine and morphine



Pharmacognosy

Plant remedies for nervous system; stimulants

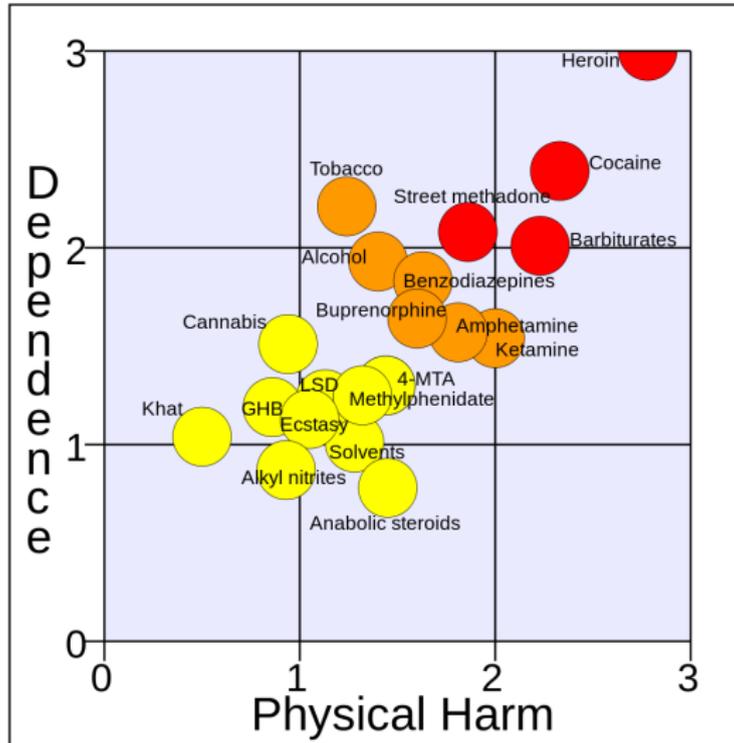


Stimulants and narcotics

- Most of them substitute natural synaptic neurotransmitters
- Withdrawal syndrome is due to flexibility of our biosynthesis



From Nutt et al. (2007) in "Lancet"



Cannabis, *Cannabis sativa*, Cannabaceae, South Asia

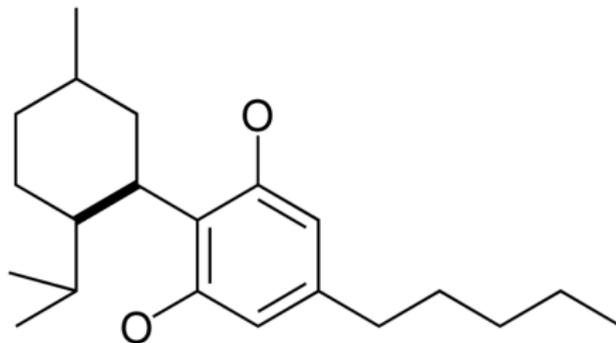
- Annual or perennial herb
- Leaves contain unique family of terpeno-phenolic compounds called cannabinoids (some psychoactive like THC, tetrahydrocannabinol; some are not like CBD, cannabidiols)
- THC is known to activate protein-coupled cannabinoid receptors 1 and 2 (CB₁, CB₂)
- Cannabinoids mimic endocannabinoids which acts as retro-neurotransmitters which go backward in synapse and terminate release of “normal” neurotransmitters



Cannabis



CBD, cannabidiol



Summary

- Most of stimulant narcotics are analogs of neurotransmitters



For Further Reading



A. Shipunov.

Ethnobotany [Electronic resource].

2011—onwards.

Mode of access:

http://ashipunov.info/shipunov/school/biol_310



M. Heinrich and others.

Fundamentals of pharmacognosy amd phytotherapy (selected chapters). [Electronic resource].

Churchill Livingstone, 2004.

Mode of access: http://ashipunov.info/shipunov/school/biol_310/heinrich2004_fund_pharm_part.djvu

Chapter 16.

