

# *Pharmacognosy*

## *lab exercise 11*



**Drugs - seeds**



# *Strychni semen*



- Mother plant: *Strychnos nux-vomica*, Loganiaceae (Strychnaceae), Nux vomica, Poison Nut, Semen strychnos, Quaker Buttons

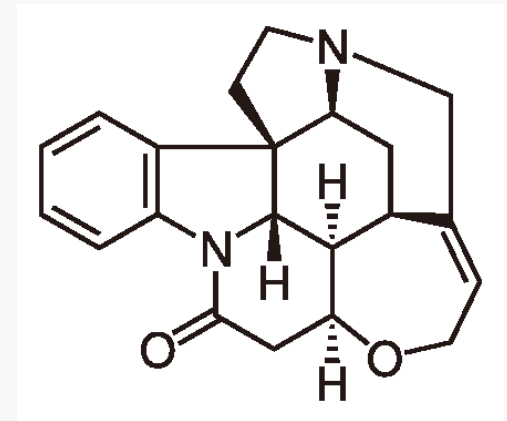




# ***Strychni semen***



- Macroscopy: discoid seed, on the margin thicken, size 2,5 cm, greenish to grey-yellow colour, silky shiny, densely felt-like, without odour, very bitter taste
- Content compounds: **indole alkaloids** - strychnin, brucin, bitter substances, choline, sugars, oil
- Usage: analeptic



strychnin



# *Strychni semen*



- Microscopy: epidermal cells pass to thick-walled trichomes nodular curved with club-like pointed base, nutritious layer with hardly pressed cells, endosperm with plasmodesma, with aleuronic grains and fat droplets



# *Strychni semen*

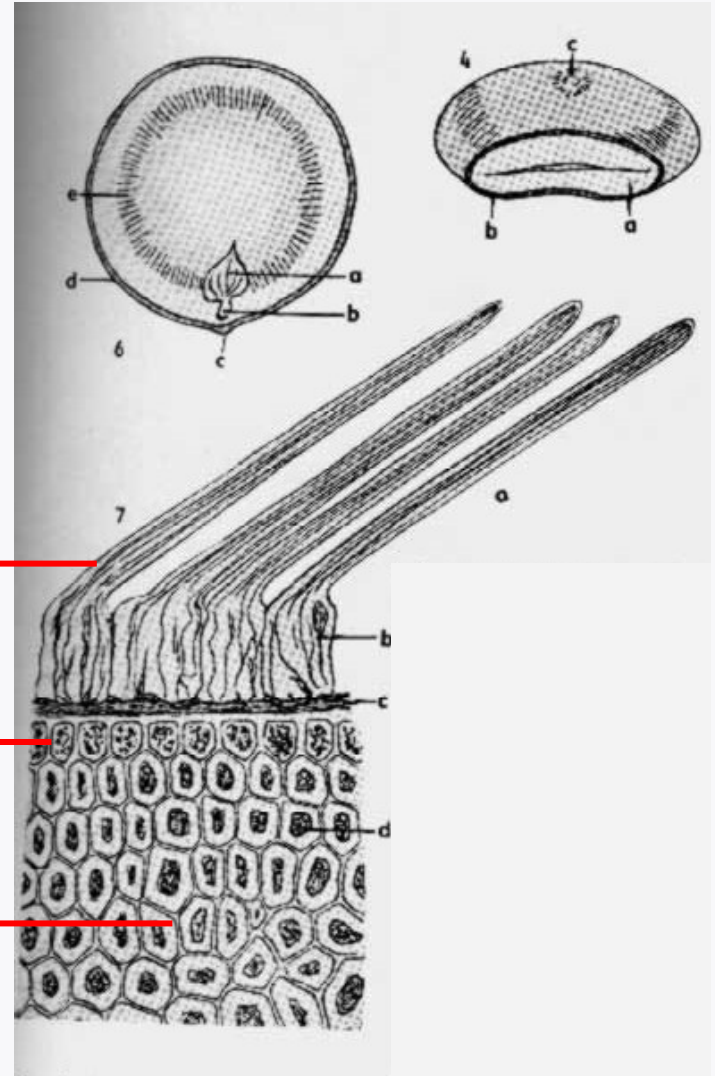


- Microscopy:

trichomes

nutritious layer

endosperm

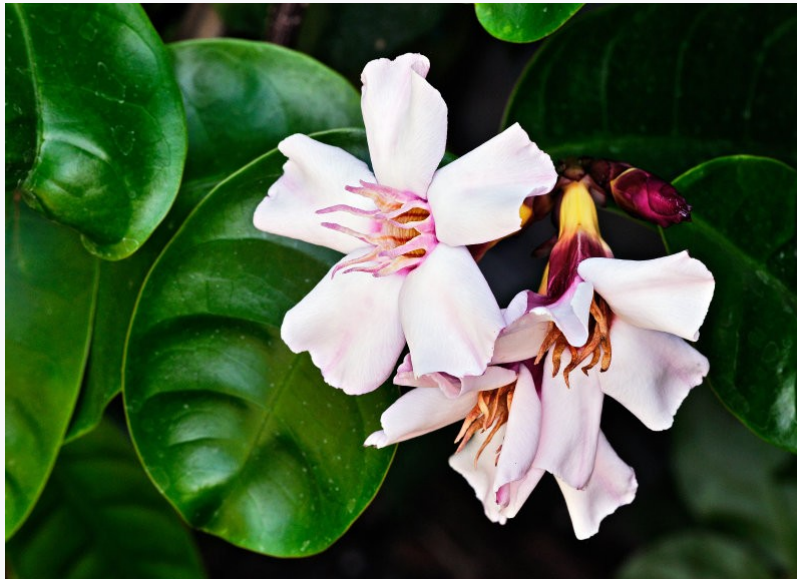




# *Strophanti semen*



- Mother plant: *Strophantus gratus*, *Strophantus combé*,  
*Apocynaceae*

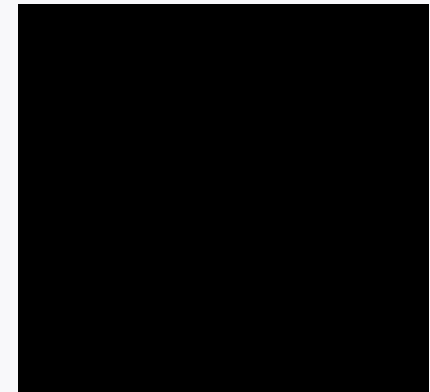




# ***Strophanti semen***



- Macroscopy: seeds of spindle-like shape, pressed, sharpened, sharp-edged, without residue of awn, 2 cm length, yellow to brown-yellow, characteristic odour, persistent bitter taste
- Content compounds: **cardioglycosides**, saponins, proteases, choline, oil
- Usage: for isolation of cardioglycosides, cardiotonic



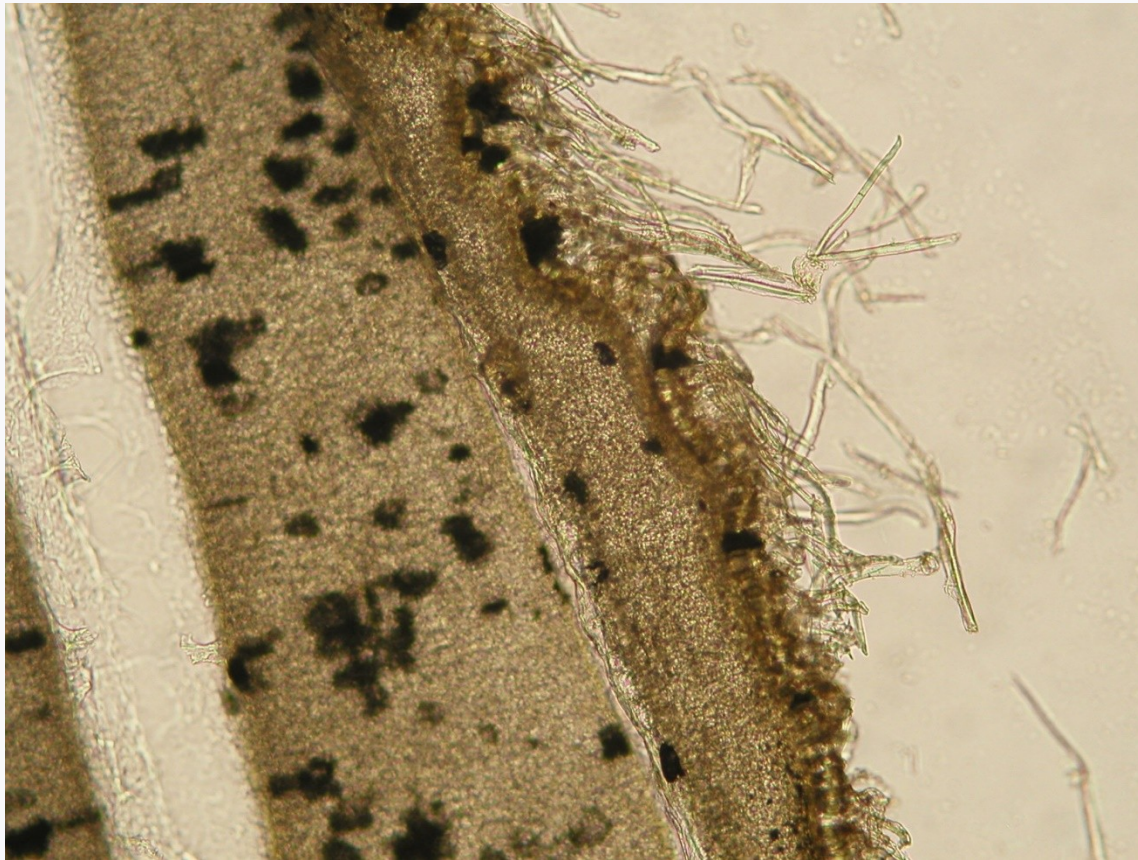
k-strofantidin



# *Strophanti semen*



- Microscopy: grainy cuticle, tangential prolonged epidermal cells, papilla-like trichomes, layer of pressed nutritious cells, endosperm, embryo







# *Strophanti semen*



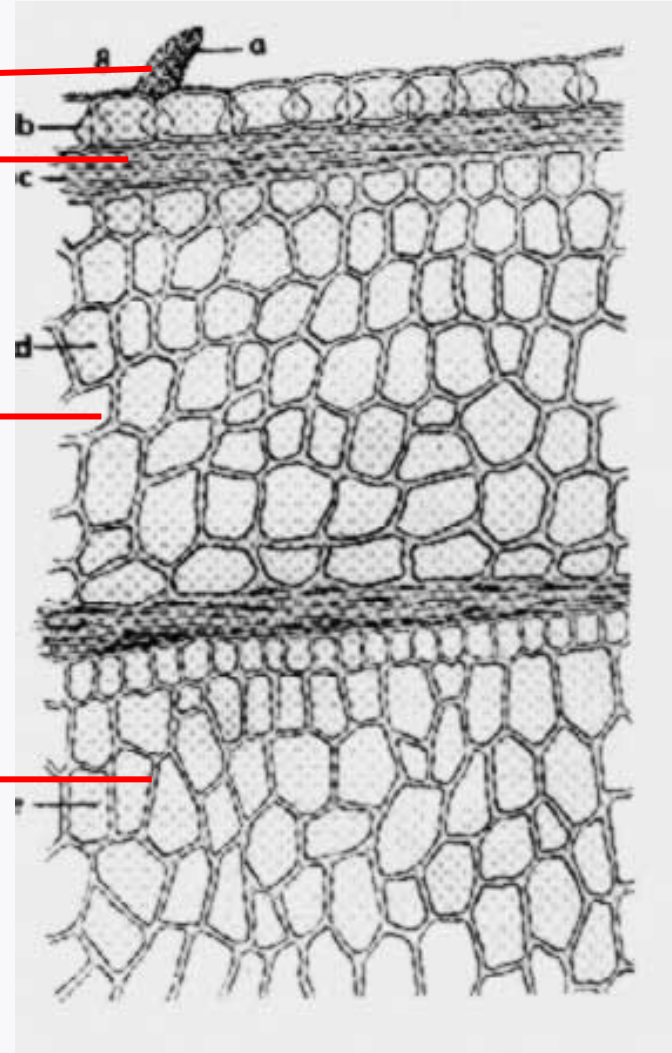
## ■ Microscopy:

trichome

nutritious layer

endosperm

embryo





# ***MACROSCOPY***

# *Colae semen* CzPh 2017



- Mother plant: *Cola nitida*, *Cola acuminata*, *Cola vera*, Malvaceae (Sterculioideae) Cola nut



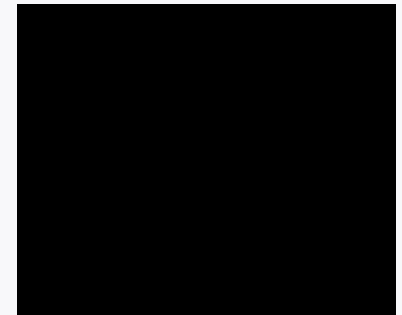
# *Colae semen* CzPh 2017



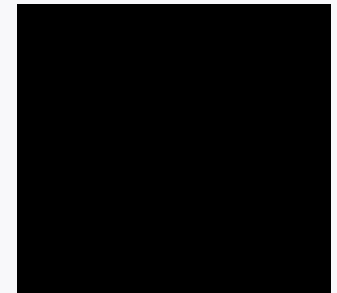
- Macroscopy: seeds - embryo, testa is removed, posses 2 (*C. vera*) or 3-6 (*C. acuminata*) cotyledons, cola cotyledons are hard, externally smooth to roughly wrinkled, on the section grainy, externally dark brown, inside brighter, aromatic odour, nut-like bitterish taste
- Content compounds: **purine alkaloids**-caffein, theobromin, fixed on tannins
- Usage: roborant, stimulant, refreshing beverages



caffein



theobromin





# *Colchici semen*



- Mother plant: *Colchicum autumnale*, Colchicaceae, autumn crocus, meadow saffron, naked lady



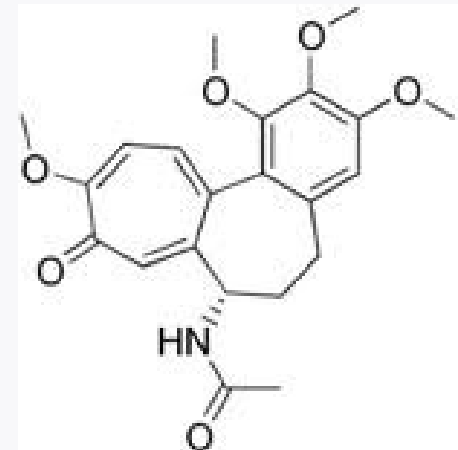
*Colchicum autumnale* L.  
Image processed by Thomas Schoepke  
[www.plant-pictures.de](http://www.plant-pictures.de)



# *Colchici semen*



- Macroscopy: spherical, hard, in diameter cca 3 mm big, matte red to dark brown, fresh little bit sticky, wrinkled rough surface, without odour, sharp very bitter taste
- Content compounds: **alkaloids** - **colchicine, demecolcine**; oil, tannins, proteins
- Usage: antineoplastic, antiuratic



colchicine



# *Lini semen* CzPh 2017

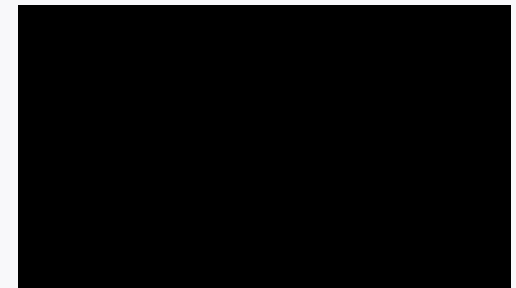
- Mother plant: *Linum usitatissimum*, Linaceae, Flax



# *Lini semen* CzPh 2017



- Macroscopy: seeds oval, concave sharpened, flattened, on the margin thin with concave edge, to 6 mm long, yellow-brown to brown-red, shiny, without odour, taste mucilaginous, oily
- Content compounds: **mucilage**, drying oil, proteins, cyanogenic glycosides (linamarin)
- Usage: emolient, mucilaginous, laxative, protective of mucous layers



linamarin





# *Ricini semen*



- Mother plant: *Ricinus communis*, Euphorbiaceae, Castor oil plant
- *Ricini oleum hydrogenatum* CzPh 2017
- *Ricini oleum raffinatum* CzPh 2017
- *Ricini oleum virginale* CzPh 2017





# *Ricini semen*



- Macroscopy: shiny seeds, grey-brown to red-brown striped, oval, without odour, oily bitter taste
- Content compounds: non-drying **oil**, **lectines** (ricin), alkaloid ricinine, lipases, mucilage-like compounds
- Usage: laxative, dermatic and cosmetic



ricinine



# *Sinapis semen*

- Mother plant: *Brassica nigra*, Brassicaceae, Black Mustard

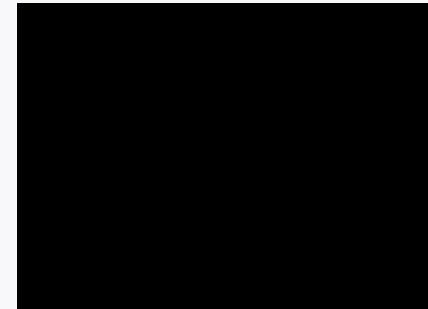


Brassica nigra (L.) W.D.J. Koch



# *Sinapis semen*

- Macroscopy: almost spherical seeds, pale to red-brown, when dry – fragile, without odour, oily taste – later acidish and spicy hot
- Content compounds: up to 35 % of **oil, glucosinolate sinigrin**, proteins, mucilage
- Usage: derivant



sinigrin