



# Ethnobotany. Lecture 21

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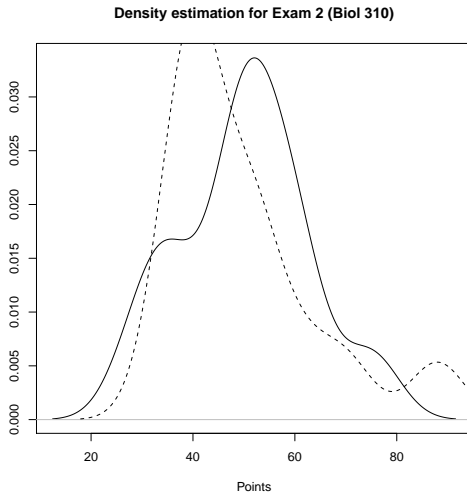
# Outline

- 1 Questions and answers
- 2 Subtropical fruits

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# Exam 2 distribution



## Exam 2 notes

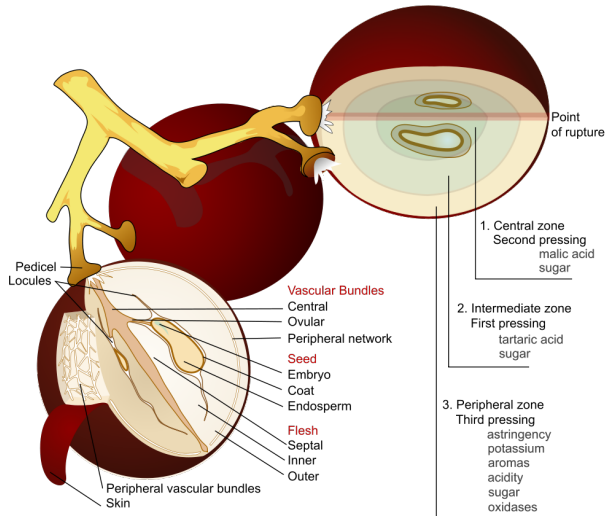
# Grape, *Vitis vinifera*

- Belongs to grape family, Vitaceae
- Genus has 70 species, only several are cultivated

# Grape biology and agriculture

- Woody vine with tendrils (modified shoots) and palmately lobed leaves
- Agriculture always depend on local climatic conditions
- Forming and cutting are two extremely important techniques

# Grape





# Grape history

- Central Asian center of origin, cultivated from 4,000 BC
- In Europe, culture flourished in XVII–XVIII centuries
- Used for wine, glucose sugar (raisins) and oil

# Persimmon, *Diospiros kaki*

- Belongs to mostly tropical blackwood family, Ebenaceae
- Large genus (200) but only one deciduous species cultivated

# Persimmons



# Persimmon features and history

- Originates in China
- Fruits are rich of microelements and carotens
- Used also as dry fruit and in eastern medicine; wood is widely used for furniture

# Persimmon tree in Japan



# Pomegranate, *Punica granatum*

- Belongs to Lythraceae family, genus has only 2 species
- Semi-evergreen shrub

# Pomegranate features and history

- The edible parts of fruit are seed arils (similar to litchi)
- Old Mediterranean culture
- Trees are flowering from 2nd year
- One of the most reach of biologically active compounds fruit: contain ellagitannins, punicalagins, polyphenolic catechins, gallocatechins and anthocyanins. They reduce heart disease risks, oxidation, stimulate digestion and immune system.

# Pomegranate flower





# Date palm, *Phoenix dactylifera*

- Belongs to palm family, Palmae; genus with several species which are cultivated mostly as ornamental palms
- Plant of multiple use: everything, from roots to dry stems, are used

# Date palm



# Date palm biology and agriculture

- Extremely tolerant to heat, may grow with temperatures above 50°C
- Does not tolerate precipitation; water is normally taken only from deeper soil layers
- Propagated with subsidiary shoots (grow faster than seeds)

# Date palm history

- One of the oldest cultivated plants
- Dry fruits are the main food source in North Africa;  $\approx 300$  kcal per 100 g (highest among all fruits)
- Dates are rich of minerals, especially potassium, sodium and calcium

# Fig tree, *Ficus carica*

- Belongs to mulberry family, Moraceae, and to one of the largest flowering plant genus, *Ficus* ( $\approx 1,000$  species)
- One of the rare deciduous *Ficus*

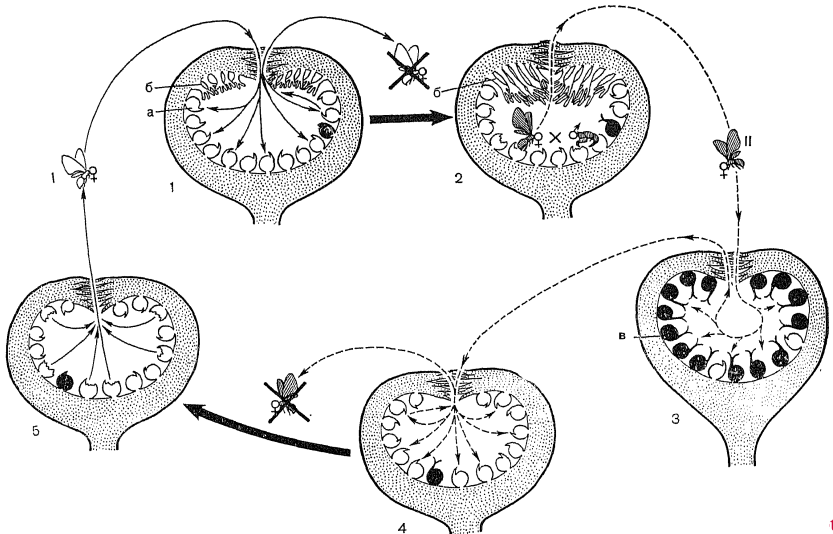
# Fig inflorescence



# Fig tree biology and agriculture

- Edible part of fruit is the axis of inflorescence (not unlike pineapple)
- Have extremely complicated pollination system, including plants with sterile figs (caprifigs), fertile figs and fig wasps

# Fig pollination





## Fig wasps movie

# Fig tree history

- Cultivated from Old Testament times in West Asian center
- “carica” is from “Caria”, the region in contemporary Turkey

# Accursed fig tree (Tissot, illustrations for New Testament)



# Mulberry, *Morus* spp.

- Same mulberry family, Moraceae
- Several species are cultivated: black (*Morus nigra*), white (*M. alba*) and red (*M. rubra*)
- Occurs both in Eurasia and North America

# Mulberry



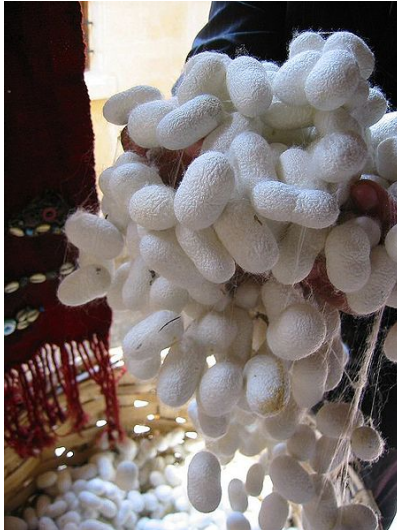
# Mulberry features and history

- Deciduous trees, with compact raspberry-like inflorescences
- Infructescences are rich of sugars ( $\approx 22\%$ ), used raw, for wine, syrups etc.
- White mulberry is the feeding plant of silkworm, *Bombyx mori*

# Silkworms on mulberry leaves



# Cocoons





# Kiwifruit, *Actinidia chinensis*

- Belong to Actinidiaceae family, genus contains  $\approx 40$  species
- Woody vines, cultivated mostly as ornamentals

# Kiwifruit flowers



# Kiwifruit biology and agriculture

- Dioecious, fast-growing plant
- Biggest problem is pollination (need saturated pollination)
- Fruits rich of sugars, pectins, organic acid and enzyme actinidin (analog of papain and bromelain)

# Kiwifruit history

- In China, was cultivated as ornamental
- After 30 years of intensive selection (started in 1904), New Zealand invented the kiwi fruit

# Summary

- Many subtropical fruits are traditional old cultures from West or Central Asia

# For Further Reading



A. Shipunov.

*Ethnobotany* [Electronic resource]. 2011—onwards.

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[http://ashipunov.info/shipunov/school/biol\\_310](http://ashipunov.info/shipunov/school/biol_310)



P. M. Zhukovskij.

*Cultivated plants and their wild relatives* [Electronic resource].

Commonwealth Agricultural Bureaux, 1962.

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**Pages 28–74** (fruits).