

Ethnobotany. Lecture 22

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Outline

- 1 Fruits
 - Important tropical fruits



Fruits

Important tropical fruits



Pineapple, *Ananas comosa*

- The only fruit from Bromeliaceae family
- Herbaceous plant
- “Fruit” is a ripened inflorescence (infructescence, pseudocarp)



Pineapple biology

- Perennial herb with rigid, spiny, succulent leaves
- Leaf rosette serves as reservoir for water
- Inflorescence is a dense spike, where all flowers are fused



Pineapple flower



Pineapple agriculture

- Needs semi-dry tropical climate and lots of fertilizers
- Flowering is normally being induced by sodium acetylide and water reaction, resulted ethyne acts as a flower-stimulated hormone
- Harvesting is dangerous due to presence of protein-digesting enzyme bromelain



Pineapple field



Pineapple history

- Pineapples are extremely rich of sugars, vitamin C and essential mineral manganese (Mn)
- Originated in South America, probably near contemporary Paraguay, wild relatives are unknown
- Cultivated in greenhouses in XVIII-XIX centuries, burning dung was typically used as a source of ethyne
- Thailand and Brazil are biggest producers now



Mango, *Mangifera indica*

- Evergreen massive tree from sumac (Anacardiaceae) family. Cultivated in most tropical countries, especially in Africa and South Asia.
- Low fertilization rate, from hundreds of flowers only few produce fruits
- Plant of monsoon climate: requires both dry and humid season
- Dwarf mango, Ataulfo mango = *Mangifera indica* 'Mango Ataulfo'
- Manual planting, pruning, harvesting but may give fruits for 300 years
- Rich of vitamin C, A and antioxidants; known to prevent colon cancer



Mango flowers



Papaya, *Carica papaya*

- Belongs to small family Caricaceae (close to Cruciferae)
- One of the most widely cultivated tropical plants



Papaya biology

- Fast growing, palm-like tree with short lifespan (< 20 years)
- Flowers of three kinds: male, female and hermaphroditic, there are ≈ 50 sexual forms
- Fruits contain seeds rich of mustard oils (like in cabbage family); fruits themselves are rich of starch, sugars, vitamin A and lycopene, and also of papain, peptidase enzyme



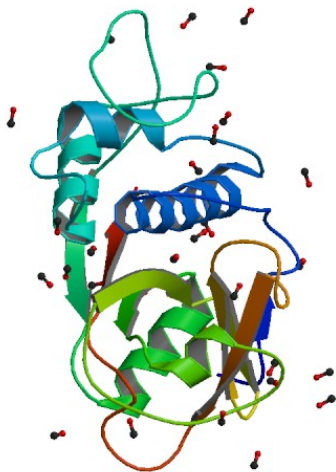
Papaya plantation



Papaya flower



Papain enzyme



Papaya history

- Domesticated in southern Mexico in Aztec time
- It is still unclear if papaya occurred in south-west Asia before the age of exploration
- Culture of wet tropical climate, Brazil is the biggest producer



Summary

- Multiple tropical fruits are mostly sources of vitamin C
- Many traditional Asian fruit cultures have also a medicinal value



For Further Reading



A. Shipunov.

Ethnobotany [Electronic resource].

2011—onwards.

Mode of access:

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



P. M. Zhukovskij.

Cultivated plants and their wild relatives [Electronic resource].

Commonwealth Agricultural Bureaux, 1962. Abridged translation from Russian.

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