

Ethnobotany

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Lecture 10

Outline

- 1 Starch-containing plants
 - Potatoes, tuber species of genus *Solanum*

Starch-containing plants

Potatoes, tuber species of genus
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Potatoes, tuber species of genus *Solanum*

- *Starch* and *inulin*—polymers of glucose or fructose monosaccharides, respectively. Plants accumulate them mostly in underground parts: roots, rhizomes, tubers
- *Solanum* is one of the largest plant genera (up to 2,000 species!) and includes several important plants (tomatoes and eggplants) and potatoes—species from section **Petota** (\approx 15 species, all produce “potatoes”).

Morphology and other features of potatoes

- Potatoes are **tubers**, enlarged parts of specialized rhizomes; buds grow into tubers in darkness
- Main function of tubers is vegetative propagation
- Yield of tubers is high, ≈ 15 ton/hectare, but 70–80% of it is a water
- Still, in calories yield is higher than rice or corn: every 100 g contain 15 g of carbohydrates
- There are almost no fats and low amounts (2%) of proteins
- Plants are cross-pollinated; fruits are toxic (contain *solanin*)

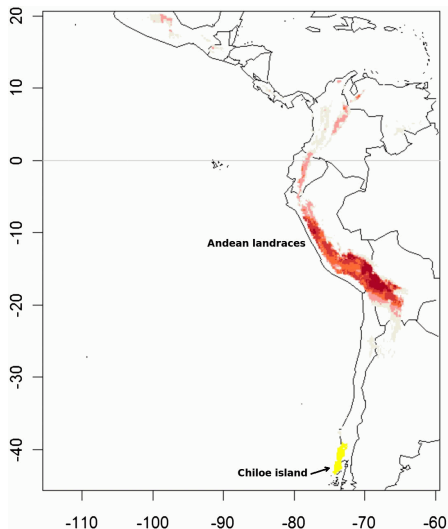
Diversity of potatoes

- All species from Petota section may form tubers
- The biggest yield is from tetraploid forms ($2n = 48$) growing in Central Andes and island Chiloe

Potatoes of Ecuador



Richness of potato landraces (from Spooner et al., 2010)



Agriculture of potatoes

- The best is extremely simple agriculture plus high energetic yield
- Planting is from potato buds, not from seeds
- Critical stage of cultivation is “hilling”, increasing the soil level around stems
- Harvesting is still not mechanized well
- Storage requires more stable conditions than seed storage

Summary

- **Starch-containing plants** are accumulating starch or inulin in underground parts

Summary

- Widely cultivated C₄ grasses are mostly ancient American (corn) or African (sorghum) cultures
- **Pseudocereals** are non-grass grains, plants from families other than Gramineae but used for same purposes

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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http://ashipunov.info/shipunov/school/biol_310/zhukovskij1962_cultivated_plants.pdf.