

Ethnobotany. Lecture 8

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Outline

1 Main food source plants: grains

2 African C₃ and C₄ grains

- *Digitaria exilis*, fonio
- *Eragrostis tef*, tef



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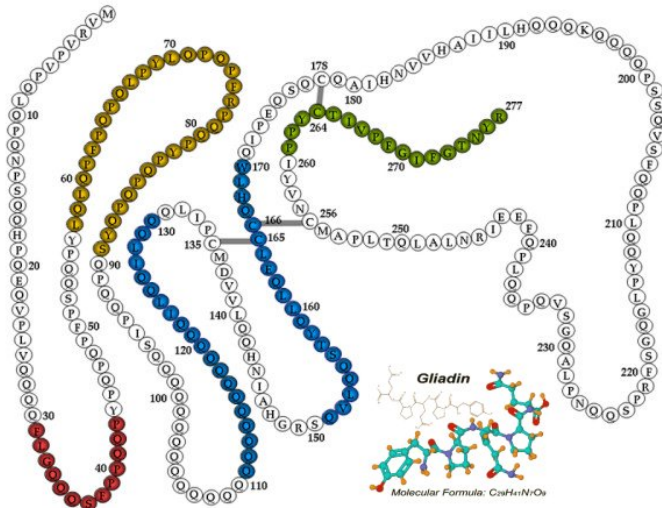


Gluten and celiac disease

- Gluten (grain proteins) of Triticeae includes prolamines—storage proteins
- They work against insect alpha-amylases making seeds virtually inedible for insects
- They also weaken tight junctions in the gut epithelial cells and cause celiac disease, auto-immune inflammation of gut epithelium
- However, the last also suppress bacterial infections so there is a positive selection for gluten sensitivity
- Finally, it is impossible to knead dough without glutes...



Gliadin motifs which cause celiac disease



African C₃ and C₄ grains

Digitaria exilis, fonio



Digitaria exilis, fonio

- Main crop of West Africa
- The only cultivated species of big (≈ 300 species) genus *Digitaria*
- Low, heavily branched grasses
- Grains are extremely small (2–3 mm); however, the yield is comparable with primitive wheats (0.6–1 ton/ha)



Fonio agriculture

- Well adapted to short days, high temperatures and low precipitation
- Needs only surface development of soil, planted by scattering
- Manual harvesting and threshing



Fonio



Fonio threshing



Fonio grains



African C₃ and C₄ grains

Eragrostis tef, tef



Eragrostis tef, or tef

- One of the main cultures of East Africa
- Used for making bread
- Small, branching plants with small spikelets and grains
- Grains are rich of iron (used also for medical purposed, for treating anemia)
- Well adapted to high altitudes
- Yield is comparable with rye (\approx 1 ton/ha)



Tef



Tef grains



For Further Reading



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Virtual cereal cultivar garden [Electronic resource].

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