

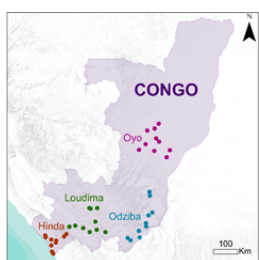
SP01-04

Genetic diversity of cassava (*Manihot esculenta* Crantz) in four production basins in Congo-Brazzaville

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Cassava is a staple crop in Congo and a major contributory for food security. Within traditional agroecosystems farmers generally cultivate a large diversity of varieties known by their vernacular names. This named diversity does not necessarily matches the genetic diversity, whose knowledge is required to design sound conservation strategies. The study designed aimed to assess cassava diversity and its structuration in four production basins of Congo : Hinda, Loudima, Odziba and Oyo.



Localization of the villages

MATERIAL & METHODS

- sample collecting based upon vernacular names conducted in 10 villages for each of the four production basin (15 farmers per village)
- selection of 31 SSR mapped markers upon their localization within the linkage groups
- genotyping of the 469 accessions collected (ABI sequencer and GeneMapper) Ho, He, He(nb), Fis (Fstat); genotype assignation (Genotype Genodive) Diversity representation constructed by Neighbour joining on Simple matching dissimilarities matrix (DARwin.6.0)

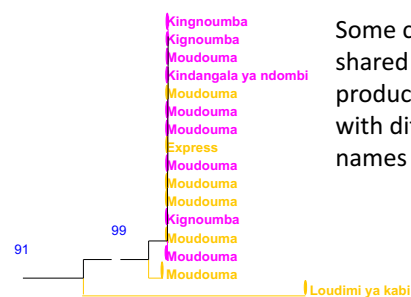


Variety Ngapi collected in Odziba. (Congo)

RESULTS AND DISCUSSION

Genetic diversity

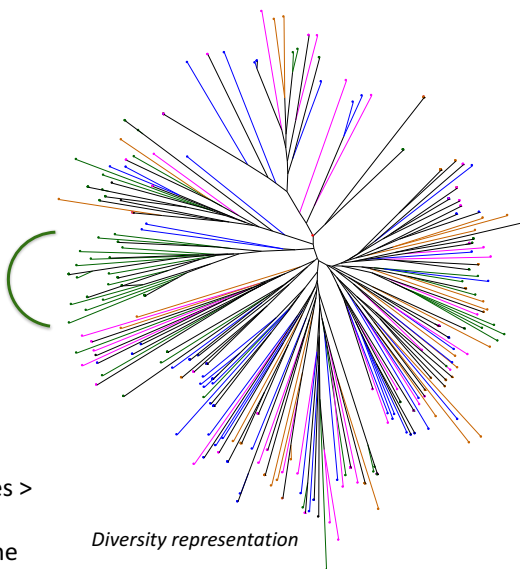
158 alleles with an average of 4.74 alleles per locus (4-9)
Slight excess of heterozygotes ($H_o = 0.64/H_e = 0.59$) and $Fis = -0,08$ → allogamy, vegetative reproduction
469 accessions = 197 genotypes : 116 unique genotypes and 81 clonal lineages (threshold 2)



Clonal lineage present in Hinda and Loudima

Some clonal lineage are shared between villages and production basins, sometimes with different vernacular names

No geographic structuration observed but a cluster in the savannah part of Odziba → including unnamed accessions with unique MLGs



Diversity representation

Genetic diversity vs named diversity

	HINDA	LOUDIMA	ODZIBA	OYO	TOTAL
MLGs	52	52	62	58	198
Unique MLGs	25	22	34	35	116
MLLs	27	30	28	23	82
Named varieties	50	56	54	55	215

- Overall number of named varieties > number of genotypes
- More genotypes than names at the regional level in Hinda, Odziba and Oyo

Odziba, Hinda, Oyo, Loudima

CONCLUSION

Molecular studies confirm that cassava diversity is dynamic in Congo. Farmers usually maintain several varieties and exchange planting material with other farmers, which accounts for the spreading of clonal lineages and the lack of geographic structuration. Unnamed varieties with unique multilocus genotypes found in the fields originate from sexually produced volunteer plants conserved by farmers, a cultural practice leading to varietal diversification.