Wild Edible Plant Use in Tshopo District, DR Congo

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Anonidium mannii
Wild fruit

Megaphrynium macrostachyum
Wild vegetable

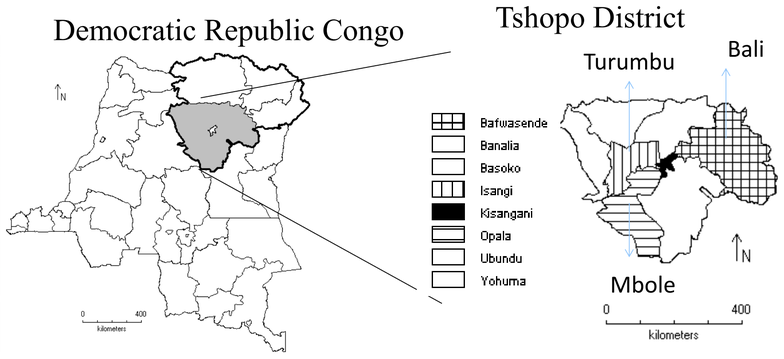
Treculia africana
seeds rich in proteins

Transport of *Gnetum africanum*
Wild vegetable

WEPs on the Kisangani markets: *Aframomum* spp., *Cola acuminata*, *Piper guineense*, *Garcinia kola*

Background and objectives

Tshopo District has ~~an~~ enormous agricultural potential, but food security remains precarious. Despite the enormous richness in biodiversity and cultures, **wild edible plants** (WEP) have ~~little~~ been poorly studied in Tshopo District, c.q. DRC. The objective of this study, carried out by the University of Ghent in collaboration with the University of Kisangani (2006-2011), was to contribute to the valorization of WEPs for better nutrition security, higher and more diversified farmers' incomes and sustained cultural well-being.



Ethnobotany

An ethnobotanical inventory (2006-2008) within 3 ethnic groups (Turumbu, Mbole and Bali) in 3 different territories of the district (Isangi, Opala and Bafwasende) documented 166 WEP species and 2 varieties from which 198 plant parts are used for 228 different food uses. Preferences in taste and commercial, nutritional and cultural value of WEPs were discussed during participatory ranking exercises. Ethnobotanical data on WEPs for the other 11 major ethnic groups in Tshopo District are being analyzed.

Number of WEP traders per market and per interview period

	(Sept.-Oct. 2007)	(Dec. 07-Jan. 08)	(Ma.-Apr. 2008)	(June-July 2008)	TOTAL
Marché Central	31	10 (5)	9 (3)	11 (7)	61 (46)
IAT	22	5 (4)	4 (3)	8 (7)	39 (36)
Tshopo 11ième	10	4 (2)	1 (0)	1 (0)	16 (12)
Kabondo Foyer	9	4 (3)	1 (0)	1 (0)	15 (12)
Djubu-djubu	6	0	1 (1)	0	7 (7)
Libanga	4	0	1 (1)	1 (1)	6 (6)
TOTAL	82	23 (14)	17 (8)	22 (15)	144 (119)
persons only present in the respective period	71 (87%)	13 (57%)	7 (41%)	15 (68%)	106 (73.6%)

Cluster membership of the 119 WEP traders based upon occurrence (trading a specific WEP or not)

	Cluster 1 spices only	**Cluster 2** fruits and spices	**Cluster 3** other leafy vegetables; kasu/mabongo	**Cluster 4** fumbwa	**Total**
Number of traders	35	22	37	22	119
fumbwa *(Gnetum africanum)*	0	0	1	**22**	23
mboka muchungu *(Solanum americanum)*	0	0	**7**	0	7
bilolo *(Solanum distichum)*	1	0	**17**	0	18
kasu *(Tetracarpidium conophorum)*	0	19	6	0	25
mabongo *(Landolphia* spp.)	0	20	16	0	36
bombi *(Anonidium mannii)*	0	**15**	0	0	15
tonga (*Synsepalum stipulatum*)	0	**11**	1	0	12
lilinda *(Chrysophyllum lacourtianum)*	0	**16**	0	0	16
tobele *(Dacryodes osika)*	0	**4**	1	0	5
bokomu *(Myrianthus arboreus)*	0	7	0	0	7
soso *(Aframomum* spp.)	4	5	4	0	13
angbongbolia *(Cola acuminata)*	15	12	1	0	28
ngadjadja *(Garcinia kola)*	10	6	0	0	16
pilipili *(Capsicum frutescens)*	24	1	2	0	27
ketchu *(Piper guineense)*	26	14	3	0	43

Market survey

WEP markets in Kisangani city were analyzed (2007-2008) in relation to number and characteristics of sellers, species and quantities offered, prices and periodicity. Only 15 WEPs were seen to be sold on Kisangani markets by a small number of 'ad hoc' traders, who easily switch to other products. Although a certain form of organization was found in the fumbwa (*Gnetum africanum)* trade with Kinshasa as main destination, other WEP markets in the region remain underdeveloped. Based on the nature of species sold as well as on the socio-economic characteristics of our interviewees, four types of traders were identified : subsistence traders (spices cluster), traders diversifying in number of WEPs sold (fruits and spices cluster), traders diversifying in number of income activities (other vegetables cluster) and specialized traders (fumbwa cluster). This typology provides valuable insights for further market chain organization and development.

Weighing and calibrating local foods

Woman preparing '*gbedegbede*' leaves

Safou (*Dacryodes edulis*)

Dietary assessment

To assess the contribution of WEPs to dietary quality, the usual dietary intake of 363 urban and 129 rural women was assessed within the period of highest WEP availability (Aug.- Sept. 2009). Contrarily to what was expected, only 15 WEPs were found to occur in a marginal number of 24h recalls. The most noteworthy contribution came from the semi-wild safou fruit (*Dacryodes edulis)*. Total energy intake of the women was rather low, with a high percentage energy coming from fats. Micronutrients of major concern were niacin, folate, vitamin B-12, iron, zinc and calcium with more than 75% of women having intakes below the recommended dietary allowances.

Conclusion and recommendations

Despite the precarious nutrition security, urban as well as rural inhabitants in this biodiverse region do not valorize their knowledge on WEPs to complement their diets. Promotion of WEPs alone will not solve all underlying causes of nutrition insecurity and poverty in the region, but WEPs could at least contribute more to diets and incomes then they currently do. A lot of WEPs with proven nutritional qualities, such as *Gnetum africanum* and *Treculia africana*, are present in the region. Lack of nutritional and health information on WEPs was frequently mentioned as constraints for WEP consumption. Before relevant traditional knowledge is lost, further research is needed on local understanding of WEPs and their dietary use to capture the potential of biodiversity and ameliorate diet adequacy. Furthermore, it should be possible to identify, embrace and build upon local socio-cultural values to enhance WEP consumption and trade. Nutritional education messages should be based on sound scientific knowledge, while being able to stimulate local positive behaviors.

~~We recommend~~ The integration of WEPs into strategies for sustainable rural development in Tshopo District is recommended, e.g. through promotion of homegardens and integration of WEPs in these systems. Research into agrobiodiversity and agroforestry starting from local needs and indigenous knowledge, and backed up by sound scientific research is indispensable to create innovative, resilient agricultural models able to produce healthy foods in a sustainable way while at the same time conserving biodiversity for future generations.

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