

# Traditional baobab novel foods from Benin: processing, preservation and gender analysis

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# Background



- In the world, more than 923 million people in the world do not have enough food most of which are vulnerable groups such as women and children
- Many efforts have been made by nutritional programmes but these do not seem very successful



# Background

Simultaneously, several forest foods are available but unfortunately under utilized and under valorized

A sustainable management and use of forest food resources can be a strategy to overcome food insecurity especially in Africa



# Why the baobab?



- Key economic tree daily used by villagers for food, medicine, economic and cultural purposes
- Priority species with food value with special attention with respect to valorisation for food security
- Pulp is rich in Vit C (150 to 500 mg /100 g dw); exhibit antioxidant activity
- Internationally known: fruit pulp acknowledged as a novel food by the European Union

However, few studies scientifically addressed its processing and uses, sustainable preservation, according to gender



# Research questions

- ❖ What are the links between socio-cultural groups –gender- and their knowledge about baobab-derived foods?
- ❖ How can baobab foods be stored better?



# Research approach



## Field work

- Survey on “ethnic knowledge on baobab foods according to gender: uses, processing, preservation”
- Sample collection: fruit pulp

## Laboratory experiment

- Storage experiment on quality degradation of fruit pulp during storage at different temperatures and water activity

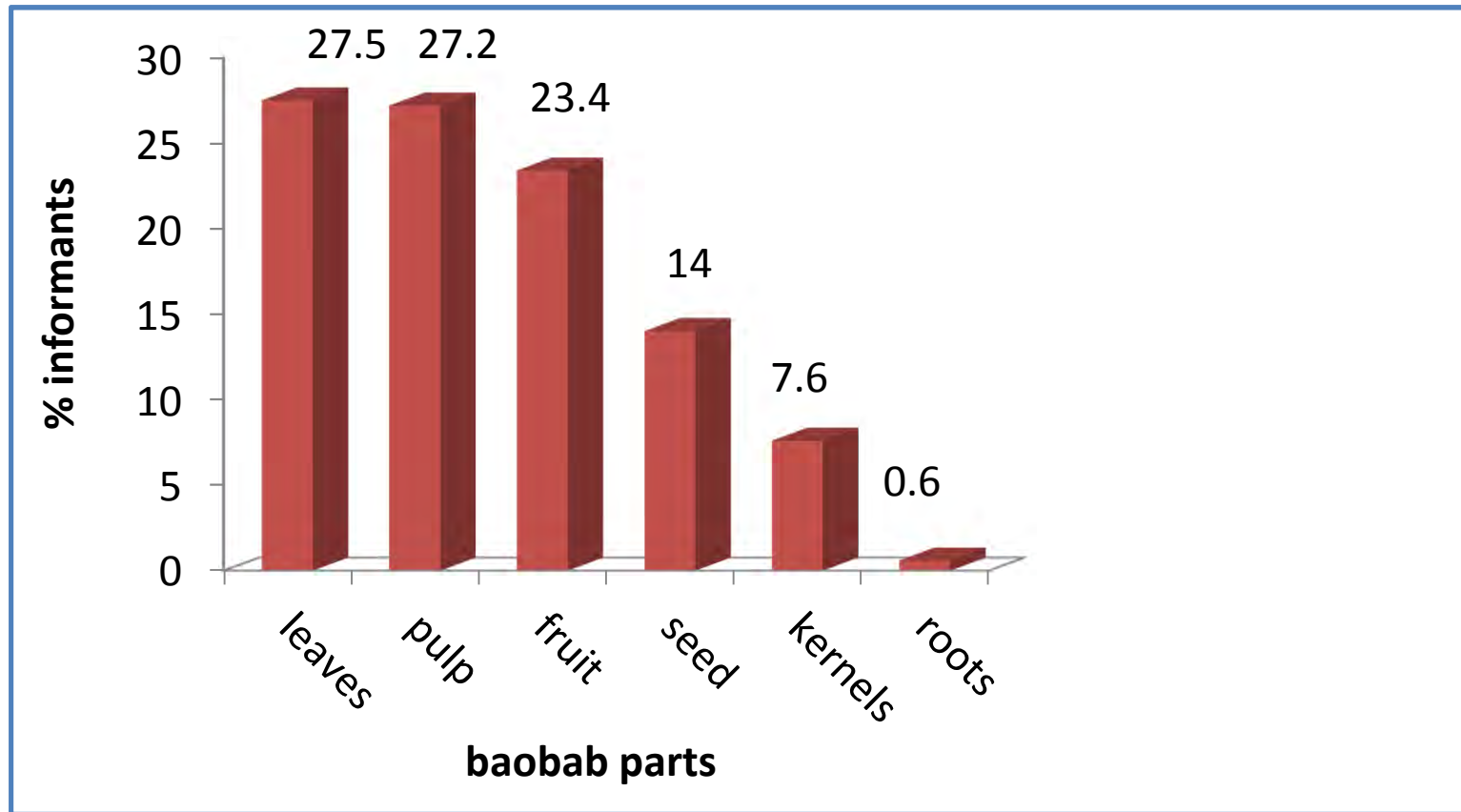


# Processing of baobab foods in Benin: gender analysis

- The survey revealed that food uses of baobab parts are specific for the ethnic groups.
- Knowledge about uses is mostly given by women



# Uses of baobab parts for foods



Up to 35 food products - porridges, sauces, drinks and seasonings - are processed from baobab parts // some fermented foods





# Some baobab leaf products according to gender



Reported by

- 91% women and 9% men
- 26-60 years
- 15 ethnic groups
- Processed by women only



Reported by

- 82% women and 18% men
- 15-70 years
- 15 ethnic groups
- Processed by women only



# Some baobab leaves products according to gender



- Fresh leaf sauce reported by
- 92% women and 8 men
  - 15-82 years
  - 15 ethnic groups
  - Processed by women only

- Dried leaf sauce reported by
- 100% women and 0 men
  - 30-41 years
  - 6 ethnic groups
  - Processed by women only

- Leaf powder sauce reported by
- 100% women and 0 men
  - 48-52 years
  - 6 ethnic groups
  - Processed by women only

## Some baobab pulp products according to gender



### **Mutchayan** reported by

- 91% women and 9% men
- 15-25 years
- 11 ethnic groups
- Processed by women only



### **Gruel** reported by

- 89% women and 11% men
- 15-70 years
- 15 ethnic groups
- Processed by women only



# Constraints in processing according to gender

<b>Difficult process operations</b>	<b>Difficulty</b>	<b>Who does it?</b>
Sieving of pulp and leaf powder	Wind take product away	Exclusively women
Fruit breaking	Requires strength	Men & Women

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<b>Difficult process operations</b>	<b>Difficulty</b>	<b>Who does it?</b>
Sieving of pulp and leaf powder	Wind take product away	Exclusively women
Fruit breaking	Requires strength	Men & Women
Seed decortication	Manual, individual seed	Exclusively women
Seed grinding	Requires strength & skills	Exclusively women

## Manual seed decortication is laborious

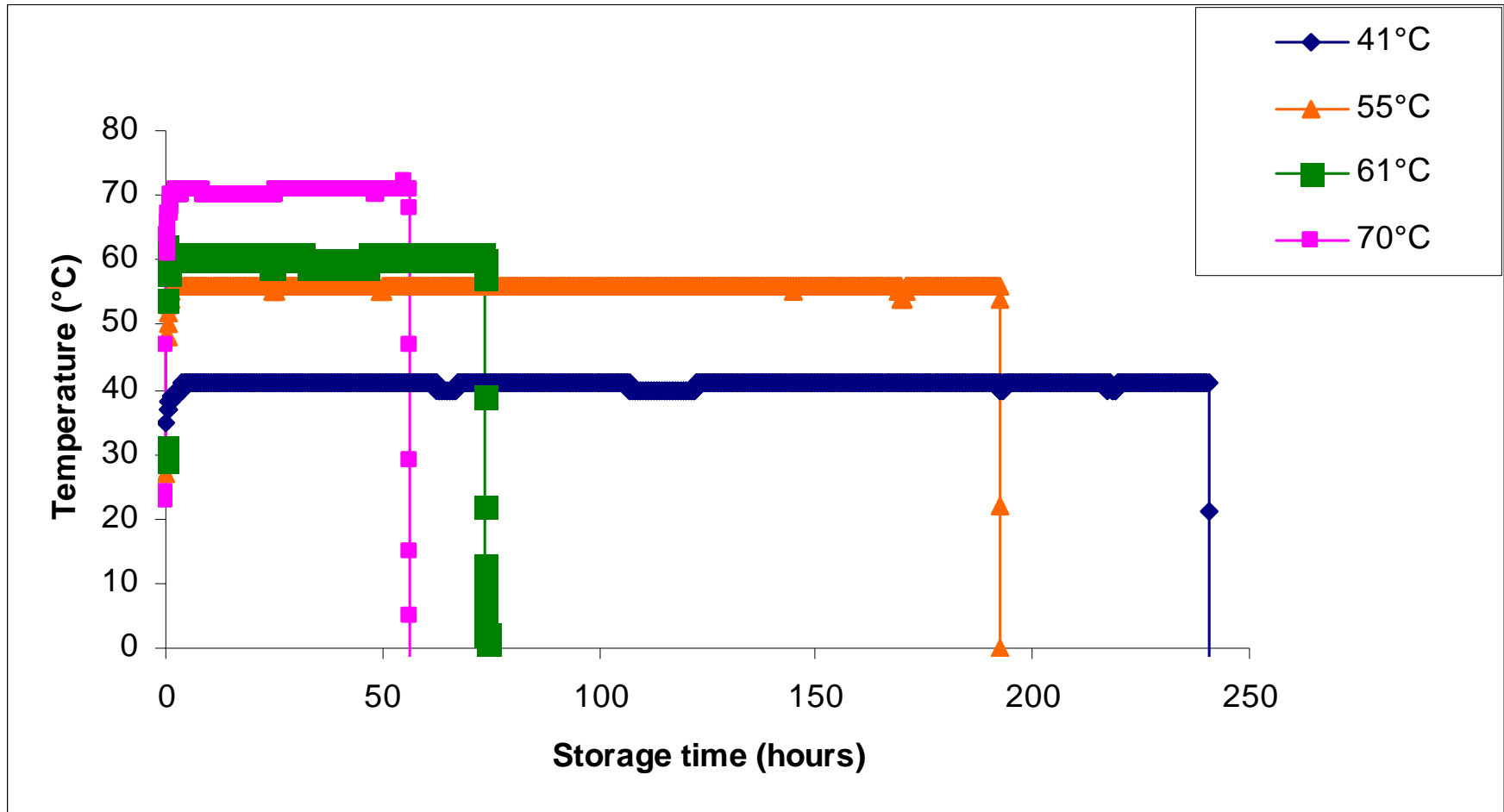


# Preservation of baobab foods: gender analysis

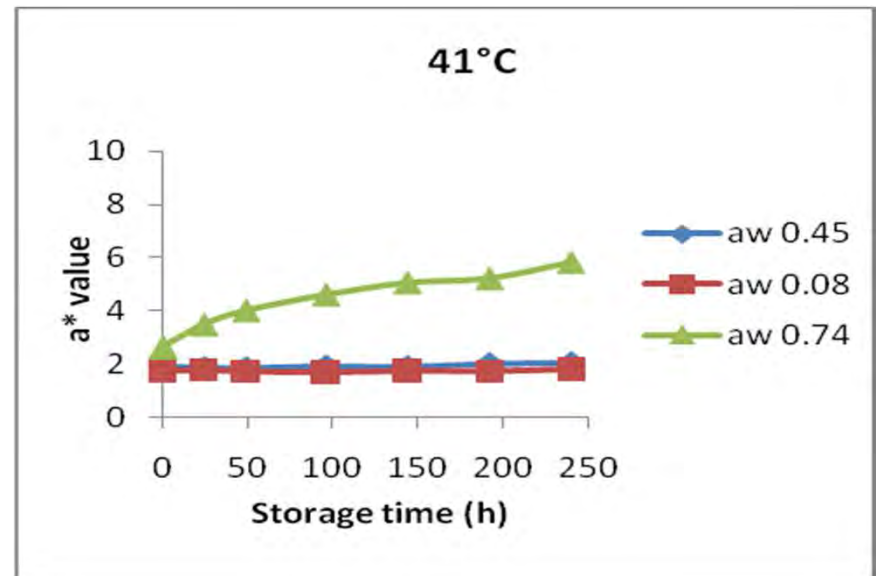
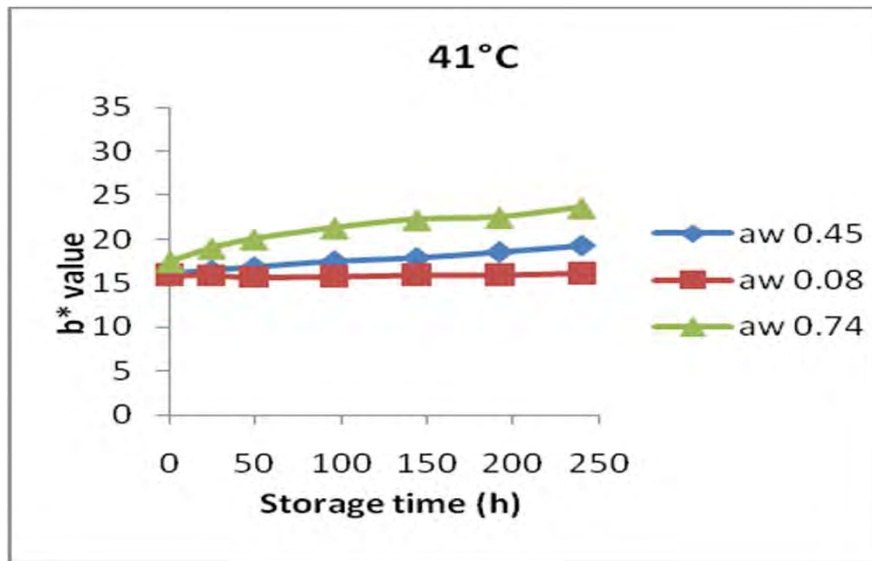
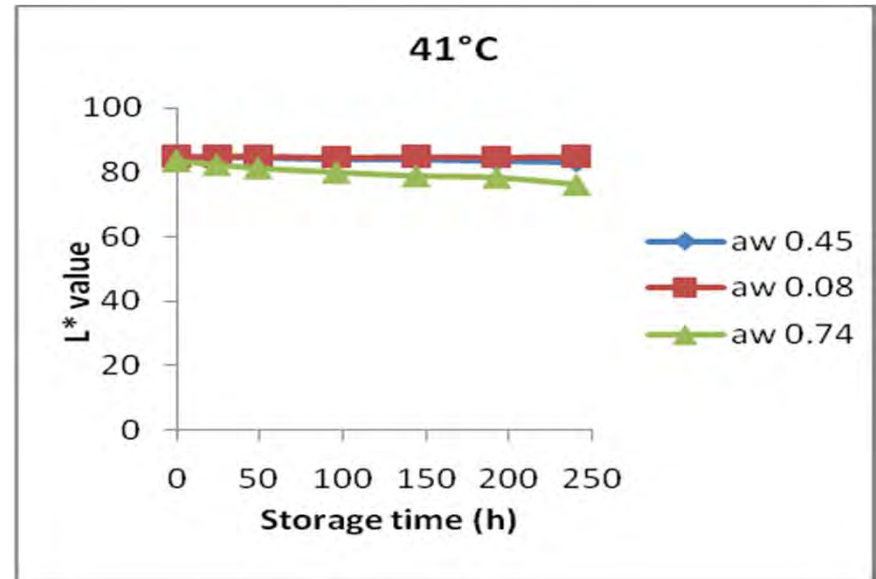
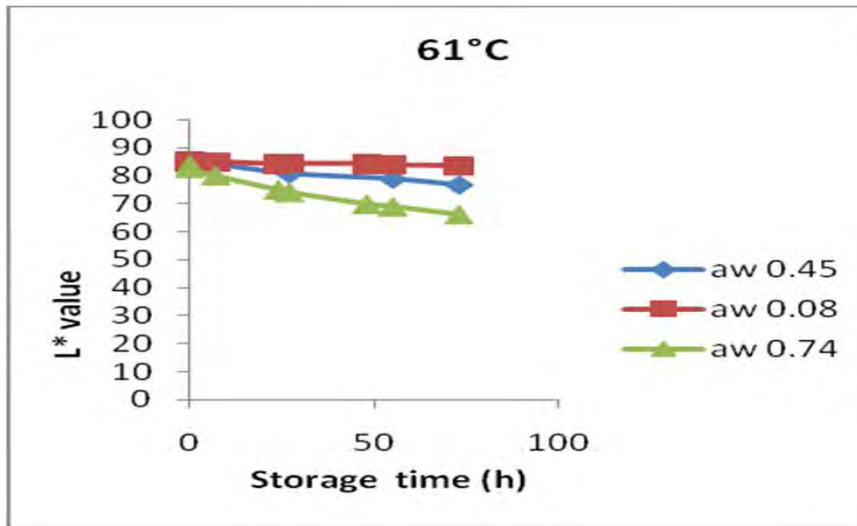
- Recorded storage time varies from one ethnic group to another depending on the storage circumstances (e.g. packaging, humidity, drying frequency).
- Pulp changes colour during storage and gets dark
- Colour change is mostly managed by women though it is noticed by men and women



# Temperatures recorded during storage experiments







With increasing storage period, pulp colour turned darker with decreasing  $L^*$  and increasing  $a^*$  and  $b^*$  values

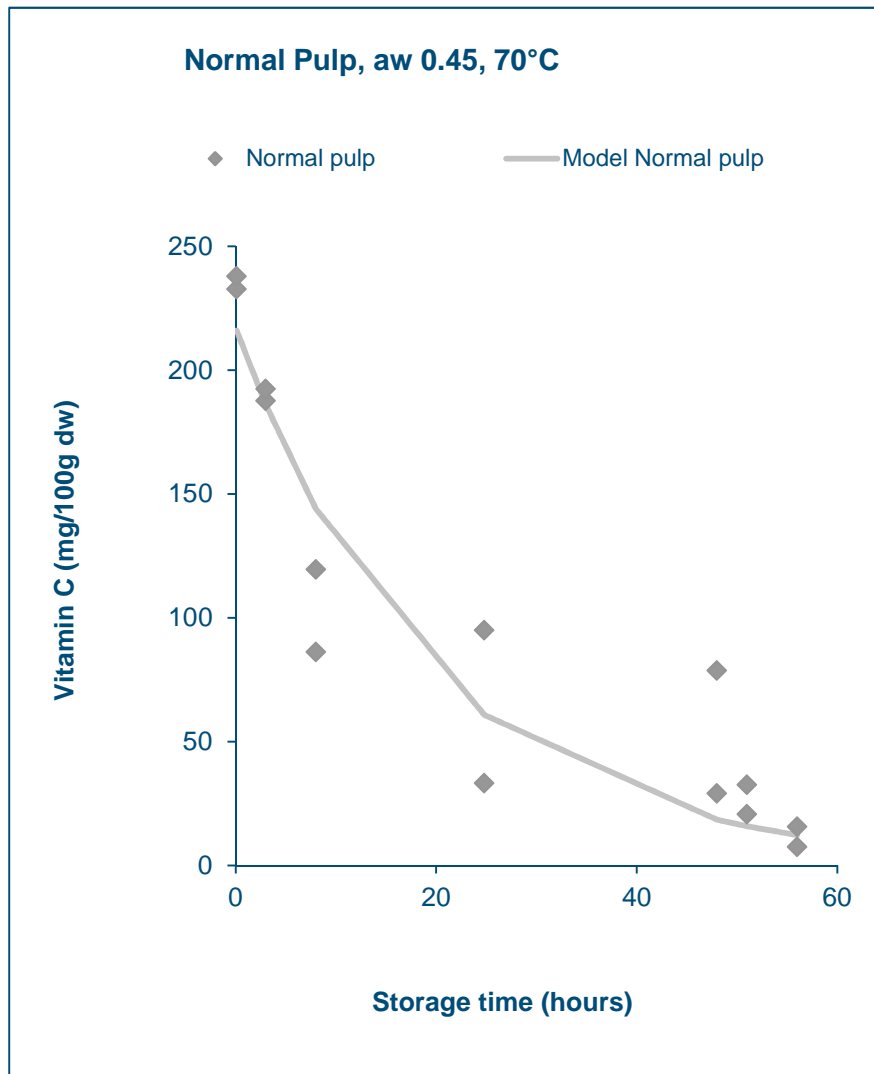
# Preservation of baobab foods: colour change of baobab fruit pulp during storage

70°C

Humidified $a_w$ 0.74								
Normal $a_w$ 0.454								
Dried $a_w$ 0.08								
Storage time (hours)	0	0.1	3	8	24.8	48	51	56



# Vitamin C degradation of baobab pulp during storage



- ❖ Reaction rates are faster at higher temperatures and water activity
- ❖ Water activity is an important factor, and this can be influenced by choosing the right packaging material
- ❖ Storage in cool and dry environment is preferable

# Discussion

- Women' role is big...
- Women are responsible of food preparation and take care of the nutrition of the household
- Rural women do not know about water activity → they just apply drying
- Rural women do not know about loss of Vitamin C during storage → they just notice and manage colour change



# Discussion

## Women work so hard.....

- Most processing operations are done by women
- The most difficult ones are left for women
- Women have to take care of the appropriate preservation of baobab food material



# Discussion

- Necessity to study in more details traditional baobab foods and improve them → for food security
- Importance to assess the processing and preservation problems → Improve women's knowledge
- Degradation of vitamin C probably → degradation of antioxidants



# Conclusion/Policies

- **Necessity to perform research on adapted and appropriate packaging material for baobab pulp and its derived foods to be used in rural conditions**
- **Development of baobab food processing equipments and their extension is necessary for an improved livelihood of processors/women**
- **Necessity to improve women's knowledge and practices of food handling**



# Research team on the field!



**Thank you!.....Merci!.....Enantchè!.....**