FTER

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SEPTIEME PROGRAMME-CADRE

Gowé: from the traditional know-how to an innovating technology for Europeans and Africans markets

L. Adinsi[a], G. Vieira-Dalodé[a], N. Akissoé[a], V. Anihouvi[a], C. Mestres[b], J. Hounhouigan[a]

a: UAC/FSA, Benin b: CIRAD, UMR QualiSud, France

INTRODUCTION

- Cereals main sources of macro and micro nutrients (Asiedu *et al.* 1992)

- Investigation of many African malted and/or fermented cereal products (Hounhouigan 1994, Mugula et al. 2003b, Lei and Jakobsen 2004)

- Investigation of *Gowé,* sorghum-based food widely consumed in Benin (Michodjehoun-Mestres *et al*. 2005, Vieira-Dalodé *et al*., 2007, Adinsi et al., 2014)

What is gowe ??

- **Sweetish paste of malted, fermented and cooked sorghum and/or maize flour wrapped in leaves *(Thalia welwichii* or *Tecktona grandis)***

- **Shelf-life: 1-3 days**

- **Consumed in its pure state but preferentially as a beverage after homogenizing with water, sugar, milk and ice**

- **Processing exclusively artisanal**

TRADITIONAL Processes

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Processes operations

EIGHT(8) TYPES OF GOWE

Four (4) PROCESSES – Sorghum or/and maize

Gowé from non-malted and malted grains

Five types Three (3) Processes

(Malting, Saccharification or not, fermentation, cooking)

Gowé from non-malted grains

three types One (1) Process

(Fermentation, cooking)

Consumer acceptance et sensory analysis: choice for re-engineering

Cluster analysis, sensory and acceptability scores of the different types of Gowe

Cluster	1	2	3	4
	MFp	SSaFs	SSaFp	XFp
	MFs	**SSaSFs**	**SSaSFp**	SFp
		SFs		**XFs**
Selected sensory attributes				
Brown color	13a	58bc	75c	43b
Cereal odor	48a	39b	41b	39b
Fermented odor	36ab	23ac	18c	49b
Sweet taste	50a	49a	6b	27c
Acidic taste	40ab	21a	18a	59b
Cereal taste	46a	39b	38b	40b
Mean overall acceptability scores				
Average	5.8b	6.6c	3.8a	6.3bc
SD	2.1	1.6	2.0	1.6

SSaSF process

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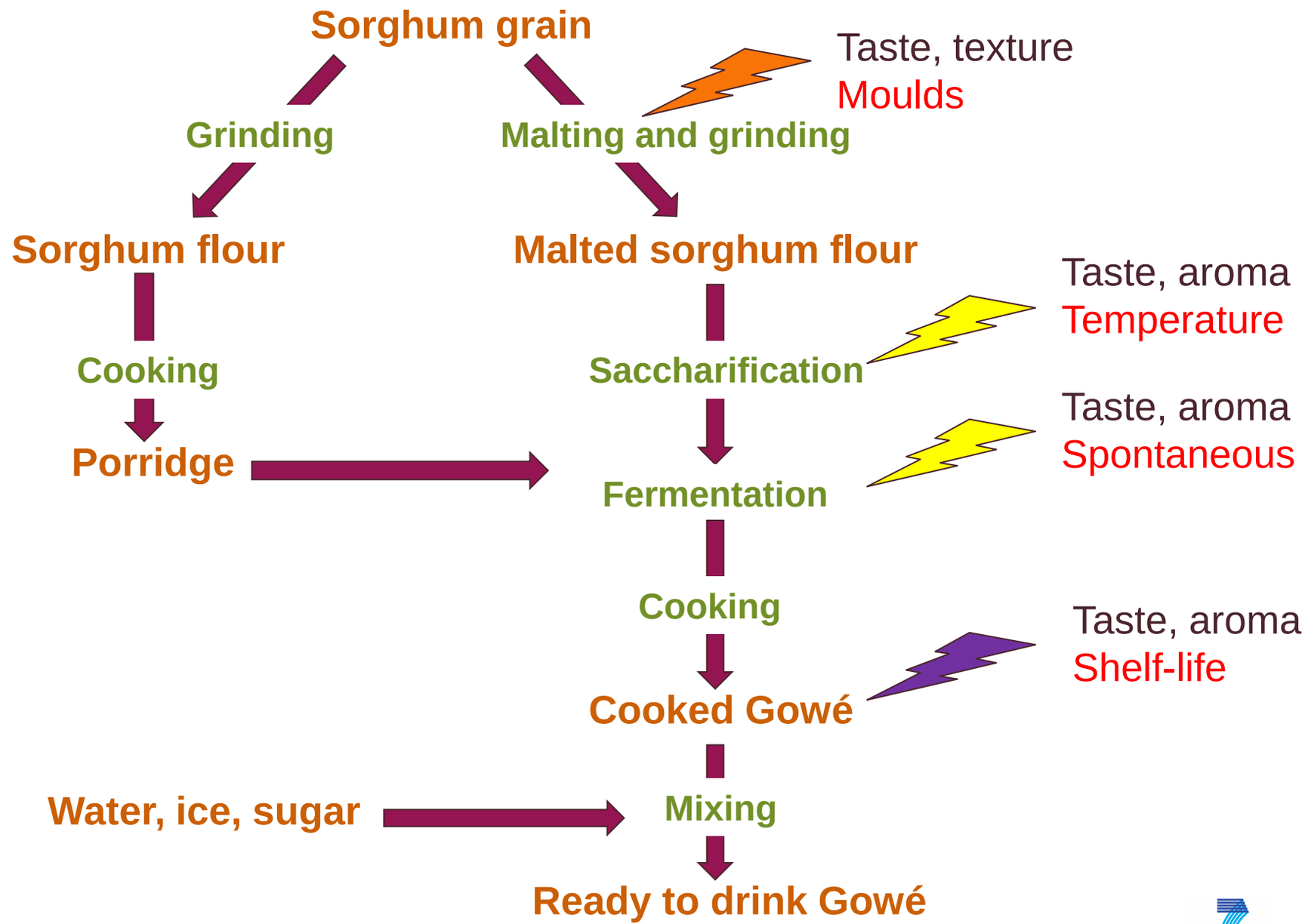

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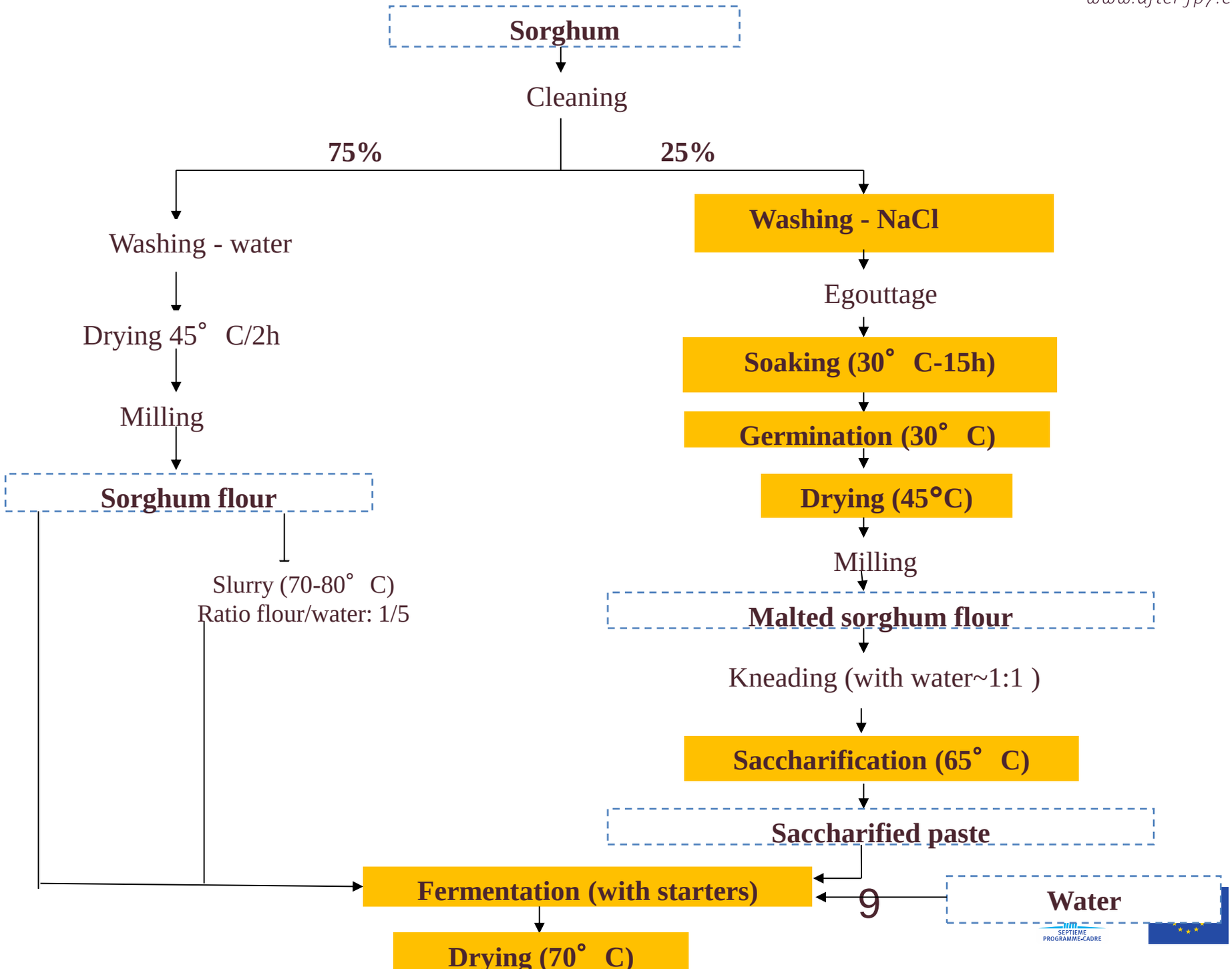
SSaSF process optimisation



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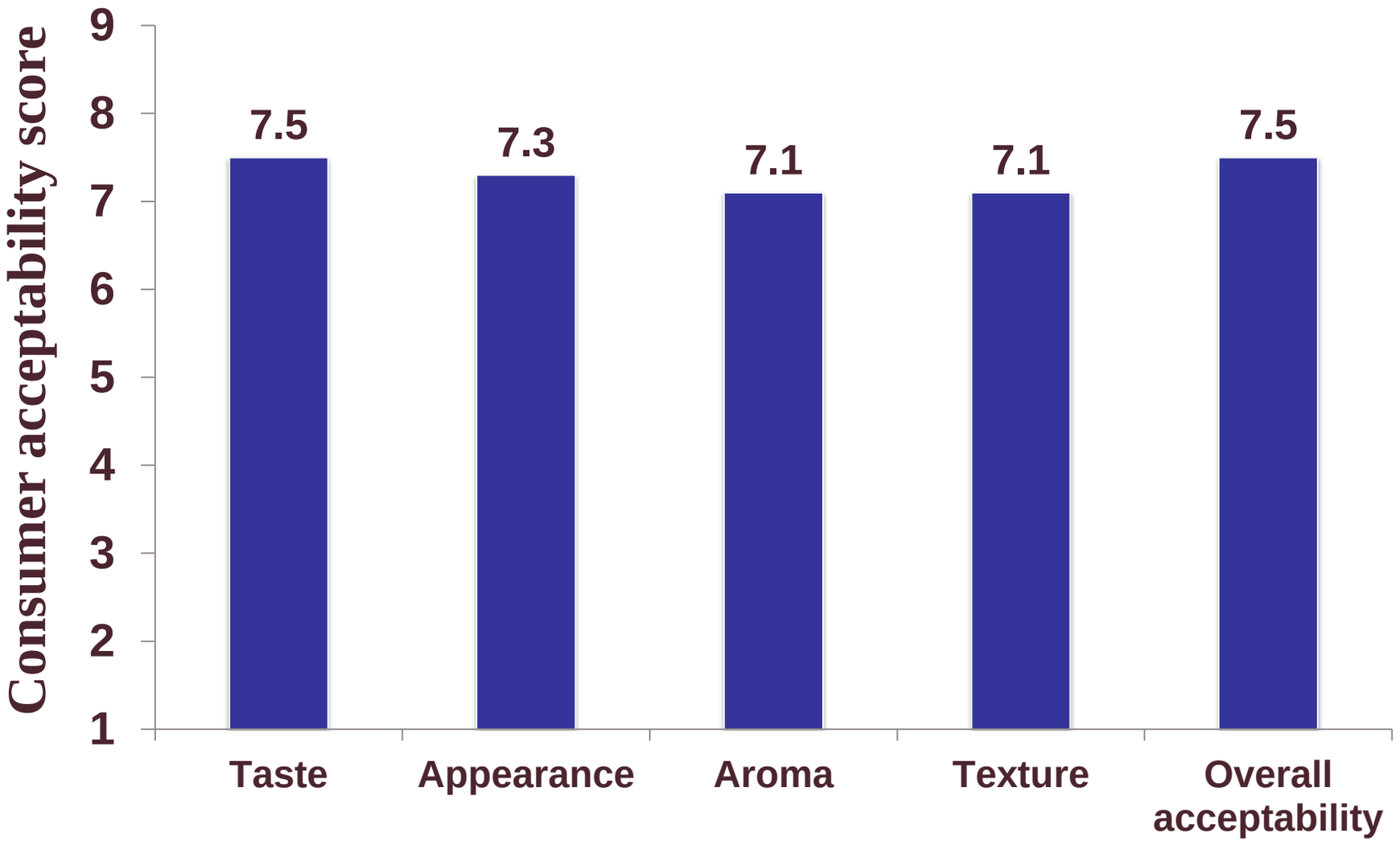
Final product : gowé flour

- Gowé flour in carton package
- shelf –life: 180 days
- Gowé flour easily reconstitued in vegetal yoghurt
- Dilution, cooking , cooling and addition of sugar, milk and ice

Selected quality parameters

Quality parameters	Traditional process	Optimized process
Moulds (malt) (log CFU/g)	5.7	4.1
α- amylase activity (malt) (CU/g)	14.8	47
Malting duration (days)	6	4
Processing duration (days)	8	5
pH	4.0	3.9
Moisture content (%, wb)	76.5	12
Maltose + glucose (%)	4.7	23.5
Sucrose (%)	7.1	0
Lactic acid (%)	2.0	2.2
Lactic acid bacteria (log CFU/g)	4.8	2.7
Slelf life (days)	1-3	180

Consumer acceptance of new gowe product



Conclusion

- Production of gowé in dried form (flour), with long shelf-life, controlled sanitary, nutritional and sensorial qualities
- High acceptance for improved product; then presentation easy to be taken abroad
- Production cost, starters supply ➔ need for a support for enterprise appropriation

THANK you for YOUR ATTENTION