Sensory texture and sweetness acceptance thresholds of boiled yam

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INTRODUCTION

Context

Boiled yam key quality attributes are: crumbly, easy to break, and sweet taste

All yam varieties can, by tentative effort be processed into boiled yam, but all of them are not really acceptable for boiling and consuming

Problematic

New yam varieties are being developed but high or medium throughput tools to assess the required quality traits and their range of acceptance are limited

Low adoption of new yam varieties

Objectifs

1 **To assess the acceptance thresholds of these quality attributes**

2 **To establish the predictive models for sensory attributes and overall liking**

METHODOLOGY

1

Processing, sensory analysis, consumer testing and biophysical analysis of yam and boiled yam

Peeling central section

Steam cooking

Boiled yam

7 *D. rotoundata* varieties including one improved

2 D. Alata including one improved

Quantitative descriptive analysis from boiled yam

Attributes: crumbly, easy to chew and sweet taste

Scale: 0-10 cm

Trained panelists: 13

Consumer testing

Just About test: crumbly, easy to chew and sweet taste

Overall liking: 9-point hedonic scale

Consumers: 113

Biophysical analysis

Uniaxial texture: penetration and compression tests _boiled yam

Dry matter (DM): raw (R) and boiled yam (B)

2

Development of predictive models

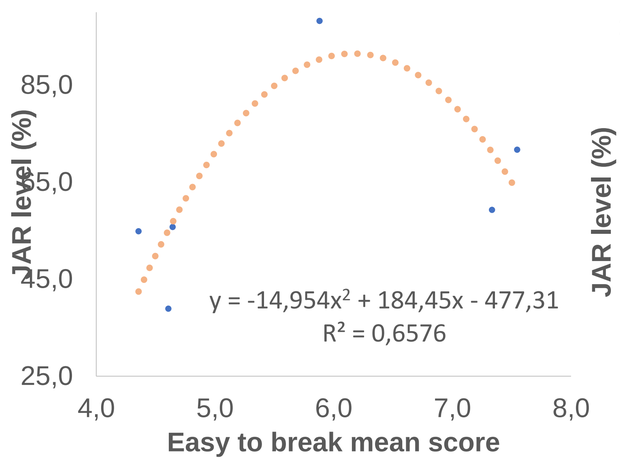
Linear (simple and multiple) regressions were applied to predict the sensory attributes by the biophysical parameters

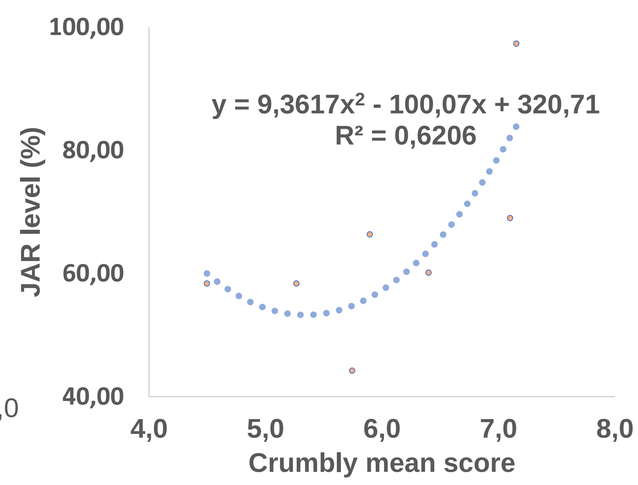
Overall liking model as function of sensory attributes was selected by using the lack of fit test (F-test) and associated p-value

RESULTS

Acceptability thresholds for sensory attributes and biophysical parameters

Sensory attributes	JAR level (%)	Sensory score		Penetration force (PF) (N)		DMR (g/100g)	
		Min	Max	Min	Max	Min	Max
Easy to break	60	5	8	5	9	33	40
	80	5	7	6	8	35	38
Crumbly	60	> 6		< 7			
	80	> 7		< 6			
Sweet taste	60	> 6		-		> 39	
	80	> 7		-		> 45	





Prediction of texture sensory attributes and overall liking of boiled yam through biophysical parameters

Dependent variables	Prediction regression equation	R^2
Easiness to break	15.33 – 0.54 x PF – 0.15 x DMR	0.95
Crumbliness	- 0.61 x PF + 10.56	0.88
Overall liking	2.4 – 0.41 x PF + 0.18 x DMR	0.79

CONCLUSION

The acceptance thresholds from sensory the instrumental measurements are promising tools for yam breeders.The predictive models can be used to screen yam varieties that meet required consumer's preferences

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REFERENCE

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