

NATIVE STARCH QUALITY OF MALAWIAN CASSAVA GENOTYPES IN DIFFERENT ENVIRONMENTS

I.R.M. BENESI¹, M.T. LABUSCHAGNE¹, A.G.O. DIXON² AND M.MAHUNGU³

¹Department of Plant Science, University of the Free State, P.O. Box 339, Bloemfontein, 9300, South Africa

²IITA, Oyo Road, PMB 5320, Ibadan, Nigeria ³SARRNET, P.O. Box 30258, Lilongwe 3, Malawi

INTRODUCTION

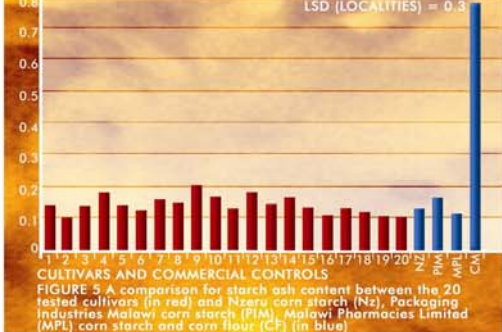
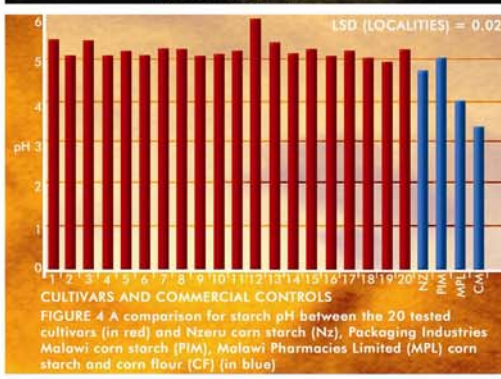
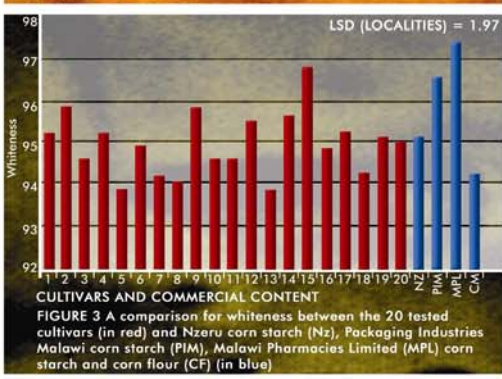
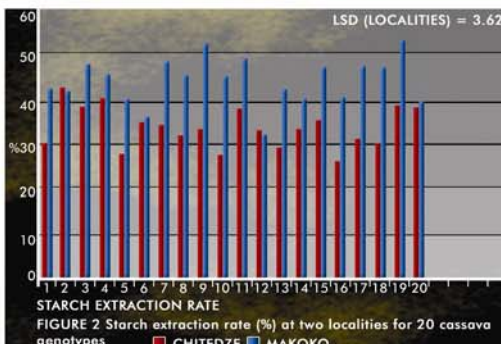
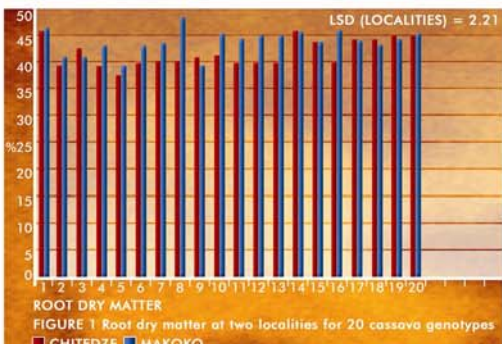
Cassava is an important food and cash crop in Malawi. It is also becoming increasingly important for industrial use. The aim of this study was to determine starch quality of 20 cassava genotypes in different environments and to compare them with the starch being used currently in the pharmaceutical, packaging, radio and other industries. If the cassava starch is of good quality it can be used as alternative to other starch sources.

MATERIALS AND METHODS

Recommended varieties	1.Mbubdumali
	2.Gomani
	3.Maunjili
	4.Silira
Locally bred clones	5.Mkondezi
	6.CH92/108
	7.CH92/077
	8.CH92/082
	9.CH92/105
	10.CH92/112
	11.MK95/054
Introduced clones	12.TMS4(2)1425
	13.TME1
	14.83350
	15.TMS60142
	16.81/00015
	17.I84563
	18.LCN8010
	19.30786
	20.TMS60121

Trials were planted as a RCBD with four replications at Chitedze and Makoka research stations. Plots were four ridges 0.9m apart, with 0.9m between plants

Root dry matter content, total native starch extraction¹, pH, moisture², protein, whiteness and ash content of starch^{3,4} were determined



DISCUSSION

There was no genotype x environment interaction for dry matter content, and genotype contributed 36% to variation. The starch of all genotypes was free of protein, as required by the industry. Starch extraction did not differ within locations, but did differ between locations.

Starch whiteness was statistically similar to corn starch. All genotypes fell within the limit of 4.5 to 7 set by the industry for starch pH, and genotype contributed 75% of variation. The moisture content of all entries was below the 15% limit set by industry and genotypes contributed 50% of variation. Ash content of all entries fell below the 0.5% limit set by industry and genotype contributed 92% of variation.

CONCLUSIONS

All cassava genotypes produced starch with no protein, and colour as white as required by the industry. The moisture and ash content as well as the pH fell within the industry recommended ranges. This suggests that native cassava starch is suitable for use in various industries.

REFERENCES

1.Numfor FA and Walter WM, Cohesiveness of native cassava starch pastes: effect of fermentation. African Journal of Root and Tuber Crops 1(2): 29-32 (1996). 2.ISO, International standard: ISO 1741 (1997b). 3.Anonymous, CRA Standard Analytical Methods B-44, C-44, E-48Joint FAO/WHO Expert Committee on Food Additives (JECFA) Monographs and Evaluations (1999). 4. ISO, International standard: ISO 3593 (1997a).

