

Olasupo Kayode T.; T.O. Ogwuche, B.O. Akinyele, G.O. Oyebode, P.O. Iluebey, O.O. Aina, E.Y. Parkes and P. A. Kulakow

Author Address: International Institute of Tropical Agriculture (IITA), Ibadan, Oyo State, Nigeria

* P.Kulakow@cgiar.org

INTRODUCTION

- Cassava is a major food crop in Sub-Saharan Africa.
- Improved cassava genotypes have the potential to yield at least 25 tonnes/ha in farmer's field with proper management.
- Development of cassava varieties with high economic value to end-users requires information on variability and heritability necessary to achieve selection progress.

PURPOSE

This research studied genetic variability among selected genotypes evaluated at a preliminary yield trial (PYT)

METHODOLOGY

- 28 cassava genotypes were selected from a seedling nursery at the International Institute of Tropical Agriculture (IITA), Ibadan Nigeria.
- Clones were planted with TMEB419, a commercial variety check, in a PYT during the 2016/2017 cropping season.
- The experiment was a randomized complete block design (RCBD) with two replications using a single row plot of five plants per genotype and spacing of 1 x 0.8m.
- Disease, growth and yield data were collected and these were analyzed in SAS using proc GLM model.

RESULTS AND DISCUSSION

- Significant variation among the cassava clones were observed ($p > 0.001$) for all traits except for plant height.
- Dry matter content ranged from 25.2 % to 42.1 % for IITA-TMS-IKN120251 and IITA-TMS-IBA164914 respectively.
- Fresh root yield ranged from observed 0.6 t/ha to 33.8 t/ha for IITA-TMS-IBA164906 and IITA-TMS-IKN120075 respectively.
- Estimates of genetic variance components, GVC, revealed a high genotypic coefficient of variation coupled with high heritability was observed for root number and fresh yield.
- High broad sense heritability was observed for growth and yield attributes implying that selection for such traits will be effective.

Table 1: Estimate of variance components, PCV, GCV and heritability for 29 F1 evaluated

Traits	Mean	δ^2p	δ^2g	δ^2e	GCV	PCV	H ²
Mean cassava mosaic disease severity	1.4	0.7	0.3	0.4	4.6	7.1	43.9
Mean cassava bacterial blight severity	1.8	0.3	0.1	0.4	2.6	4.1	48
Mean plant height (cm)	160.2	550.7	525.8	24.9	18.1	18.5	95.5
Root number	20.8	99.3	90.5	8.7	20.9	21.8	91.8
Fresh root yield (t/ha)	15.4	104.2	95.3	9.0	24.9	26.0	91.4
Dry matter (%)	37.3	15.4	12.5	3.0	5.8	6.4	81.9
Dry yield (%)	6.1	10.6	7.6	3.0	11.2	13.2	71.7

Table 2: Mean and CV for agronomic traits among 29 F1 hybrid clones evaluated.

clone	Root no	Fresh yield (t/ha)	Mean plant height (cm)	Dry matter (%)
IITA-TMS-IBA164904	31.0	31.3	163.7	31.7
IITA-TMS-IBA164905	13.5	10.0	179.5	37.2
IITA-TMS-IBA164906	3.0	0.6	190.7	38.1
IITA-TMS-IBA164907	6.5	7.5	187.5	36.7
IITA-TMS-IBA164908	5.5	1.3	210.5	29.9
IITA-TMS-IBA164909	5.0	3.1	158.3	34.5
IITA-TMS-IBA164910	32.5	24.4	172.3	42.3
IITA-TMS-IBA164911	30.5	24.4	175.0	34.7
IITA-TMS-IBA164912	22.0	15.0	147.0	37.1
IITA-TMS-IBA164913	10.0	5.6	157.7	35.4
IITA-TMS-IBA164914	32.5	26.9	133.3	43.1
IITA-TMS-IBA164915	15.0	8.8	154.5	42.8
IITA-TMS-IBA164916	17.0	6.3	115.0	36.1
IITA-TMS-IBA164917	13.0	8.8	123.2	37.8
IITA-TMS-IBA164918	24.5	25.0	124.8	37.5
IITA-TMS-IBA164919	23.0	26.3	149.8	35.5
IITA-TMS-IBA164920	26.0	22.5	186.8	40.0
IITA-TMS-IBA164921	30.5	22.5	174.5	37.7
IITA-TMS-IBA164922	38.5	25.0	175.2	42.2
IITA-TMS-IBA164923	25.0	22.5	176.3	39.8
IITA-TMS-IBA164925	15.0	11.3	167.5	37.2
IITA-TMS-IBA164926	21.0	11.3	133.3	41.6
IITA-TMS-IBA961089A	22.0	18.1	118.2	39.1
IITA-TMS-IBA972205	13.0	18.8	108.3	39.0
IITA-TMS-IKN120037	20.5	22.5	175.5	35.6
IITA-TMS-IKN120075	43.0	33.8	184.7	25.4
IITA-TMS-IKN120251	19.0	12.5	145.7	25.2
IITA-TMS-IKN120352	23.0	29.4	160.3	36.3
TMEB419(CHK)	14.3	11.1	156.6	39.2
Grand mean	20.8	15.5	160.2	37.3
Pr>F	*	*	ns	*
CV	42	57.9	15.5	7.9

* significant and ns =not significant.



Fig. 1. Determination of root weight of cassava by weighing method using salters scale

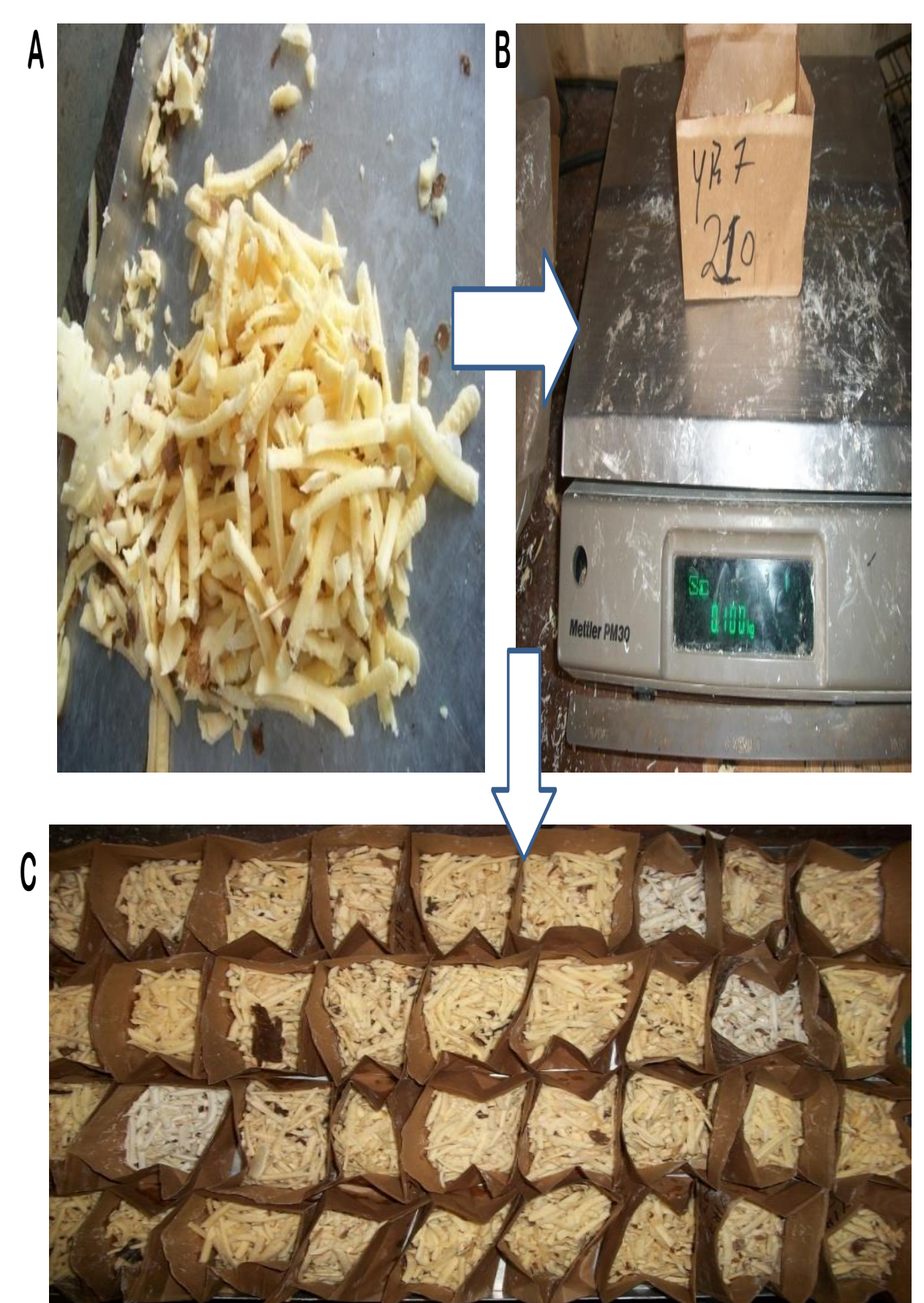


Fig. 2. Determination of dry matter content (dm) of cassava by oven dry method.

CONCLUSION

This study identified genetic variability among the studied cassava clones for selection to advanced yield trials.

ACKNOWLEDGEMENT

