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Composition and Nutritive Value of Certain Cultivars of Cassava Tubers (*Manihot esculenta* Crantz)

In Tamil Nadu several cultivars of cassava are grown in various parts of the state. They are cultivated for extraction of starch for industrial purposes and also for human and livestock consumption. A compartive assessment on chemical composition and nutritive value of these cultivars have not been assessed and the present report fulfills this objective.

Forty five cultivars of cassava were grown to maturity in a clay loam soil. The plants were pulled out at maturity, the tuber was peeled off and cut into pieces and dried in the forced air draught oven at 60—80°C. The dried tubers were powdered and analysed for total nitrogen, ash, phosphorus, potassium, calcium and magnesium.

The crude protein of the tuber was calculated from the total N employing the factor 6.25. The total N was estimated by following the method of Humphries (1956). The ash constituent was determined by using a known quantity of sample in the muffle furnace at 500 to 550°C. The mineral elements P, K, Ca and Mg were determined in the triple acid digest (HNO_3. H_2SO_4, $HClO_4$: 9 : 2 : 1) of the sample (Jackson, 1967). Phosphorus was estimated by following vanadomolybdate method (Jackson, 1967) and K, Ca and Mg in the atomic absorption spectrophotometer model AA 120 using the respective hollow cathode lamp and wave length for the elements in air acetylene flame.

The data for crude protein, ash, P, K, Ca and Mg analysis and the results of statistical analysis are presented in Table-1. The crude protein content of the edible portion of the tuber ranged from 1 02 to 3.46 per cent with a mean of 2 00 $\pm$ 0 08. The variety Vellaimuttan had the highest crude protein content. The coefficient of variation in protein among the cultivars was 28 per cent.

The ash content of the tubers ranged from 2.71 to 4.52 with a mean of 3.28 per cent $\pm$ 0.06, the highest value being recorded in Parakattu Vellai. The coefficient of variation was only 12 per cent. The ash constituent was also low. The phosphorus content varied from 0.08 to 0.24 per cent with a mean of 0.13 per cent. The largest variation (CV 30 per cent) was obtained in the phosphorus content of the tuber. Among the cations, K was present in highest amount in these types ranging from 0.77 to 1.33 per cent with an average of 1.06 per cent. The variation among varieties was also low (CV 14 per cent). The calcium content in cassava was some what higher when compared to potato and other tuber crops. It ranged from 421 to 1768 ppm with a mean value of 926 ppm. Jennings (1970) also while reviewing the composition of cassava in Africa reported that this crop contained a higher Ca content (130 to 330 ppm). Magnesium was present in a slightly lesser amount than Ca ranging from 368 to 916 ppm with a mean of 626 ppm.

P. MUTHUSWAMY
S. THAMBURAJ *
A. SHANMUGAM *
K. K. KRISHNAMOORTHY
C. R. MUTHUKRISHNAN *

Department of Soil Science and Agricultural Chemistry.
* Department of Horticulture,
Tamil Nadu Agricultural University,
Coimbatore 641003.

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TABLE 1. COMPOSITION AND NUTRITIVE CONTENT OF CASSAVA TUBER (oven dry basis).

Cultivars	Protein %	Ash %	Phosphorus (P) %	Potassium (K) %	Calcium (Ca) (ppm)	Magnesium (Mg) (ppm)
Musiri	1.70	3.06	0.10	0.93	789	663
Malavella	1.96	3.06	0.11	1.05	705	695
H 10	1.44	3.16	0.12	0.78	621	916
S5	2.49	3.16	0.12	1.05	705	484
M4	2.88	4.16	0.20	1.58	653	537
H1	2.09	3.56	0.16	0.89	863	821
Vella	2.22	3.56	0.13	1.11	961	537
Nagapattinam green.	1.83	3.14	0.10	0.95	1153	695
Aryan vella	2.22	3.23	0.11	0.77	1010	663
S2	2.22	3.82	0.18	1.51	905	632
S1	2.09	3.34	0.12	1.33	1305	537
S3	3.14	3.50	0.13	1.00	1768	600
H4	1.57	2.91	0.08	0.79	821	737
Nilgiris	2.49	3.11	0.10	0.86	421	453
Coimbatore	2.09	3.57	0.13	1.32	553	621
Rotti Poola	3.27	3.69	0.15	1.29	1058	695
Butter poola	2.74	3.86	0.18	1.11	1263	663
Ezhil Pacha	2.49	2.93	0.08	0.96	821	621
Anaikomban	1.44	3.51	0.13	1.24	1263	884
Narungu	1.44	3.26	0.13	0.88	905	516
Coloured type	2.35	3.34	0.11	1.16	1053	884
Burma	2.61	2.71	0.08	0.77	674	600
H2	1.37	2.87	0.09	1.21	553	484
H8	2.35	3.19	0.10	0 99	674	695

Madras	1.63	2.74	0.08	1.15	589	600
Kadayanallur	1.63	3.70	0.16	1.19	621	789
Salem	1.63	3.04	0.10	1.15	684	537
Trichy white	1.37	2.99	0.09	1.00	1368	484
Trichy Red	1.76	3.51	0.14	1.21	1253	821
Alangulam	2.49	2.71	0.09	1.00	905	621
Kaka Chilli	1.83	3 80	0.17	0.89	905	421
Kappi vellai	1.63	3.07	0.11	0.89	1211	389
Sundari vellai	1.76	3.03	0.12	1.11	805	695
Parakkattu vellai	1.18	4.52	0.24	1.21	868	737
Panchara vellai	1.70	3.41	0.14	1.19	837	621
Kalikalan	1.63	3.16	0.13	0.83	421	663
Karpudavan	1.57	3.02	0.09	1.24	1253	695
Alanchi	2.09	2.93	0.08	1.24	1389	600
Manjakuttan	1.96	3.64	0.20	1.32	953	600
Noor rathal	1.31	3.88	0.20	0.89	837	368
Edakkattu vellai	1.63	2.92	0.13	0.89	1284	695
Kartha kalikalan	1.02	2.76	0.13	1.15	1252	421
Vellai muttan	3.46	2.87	0.09	0.88	995	484
Nagapattinam red	1.70	3.14	0.14	0.88	868	789
Local Gobi	2.49	2.89	0.10	0.89	868	537
Mean	2.00	3.28	0.13	1.06	926	627
S. D.	± 0.56	± 0.41	± 0.04	± 0.20	± 288	± 133
S. E.	± 0.08	± 0.06	± 0.006	± 0.03	± 43	± 20
CV %	28.05	12.36	30.63	14.44	31	21