VITAMINS, MINERALS, CARBOHYDRATES AND PROTEINS IN TUBERS—I

TUBERS form an important part of diet of the poorer class of people of this Province in particular. Considering their abundance, availability and storing capacity, it was thought desirable to determine their nutritional value by carrying out their chemical analyses. In the work presented here, analyses of tubers commonly available at Bombay were undertaken for vitamins B_1 and C, Minerals—phosphorus, calcium and iron, Carbohydrates—sugars, starch, etc., and proteins.

Vitamin B_1 was estimated from the water extract employing H. Tauber's method slightly modified in this laboratory. The estimation of vitamin C was carried out in trichloracetic

Results of 100 gm. of Edible Portion of Tuber

Common name	Botanical name	Moisture	Vitamin B_1 in Int. Units	Vitamin C in mgm.	P gm.	Ca gm.	Fe in mgm.	Protein gm.	Reducing Sugar gm.	Non-reducing Sugar gm.	Starch gm.	Cellulose and other undetermined constituents gm.
Colocasia	*Colocasia antiquorum* (Allahabad variety) ..	92·180	66·450	1·405	·060	·022	1·518	2·179	0·034	0·086	3·758	1·680
Elephant's foot	*Amorphophallus campanulatus* (Surat variety) ..	71·010	24·290	1·721	·031	·057	0·981	1·770	3·752	4·281	6·438	12·660
Potato	*Solanum tuberosum* (Talegaon variety)	78·400	22·250	13·660	·038	·081	0·672	1·530	0·000	0·340	18·003	1·607
Sweet Potato	*Ipomœa batatas* (Konkan variety) ..	71·298	18·940	17·403	·061	·024	0·773	1·105	0·430	0·480	22·100	4·501
Radish	*Raphanus sativus* (Large white variety)	94·630	71·770	16·780	·025	·045	0·359	0·537	1·717	1·230	0·188	1·628
Knol-kol	*Brassica oleracea* Caulorapa ..	90·170	83·210	23·346	·026	·030	0·498	2·825	1·892	1·430	0·522	3·105
Turnip	*Brassica campestris* (var.) *rapa*. White napiform variety .	92·396	80·700	11·520	·037	·077	0·350	1·646	1·868	0·900	0·432	2·644
Beet Root	*Beta vulgaris* ..	86·570	76·408	26·210	·051	·182	0·953	1·806	1·020	7·852	0·246	2·272
Carrot	*Daucus cariota* (Orange conical variety) ..	81·150	64·913	2·389	·036	·082	1·320	0·948	6·757	4·231	0·113	6·682

acid extract, using the method adopted by L. J. Harris and S. N. Ray.[1] The ash of tubers was analysed for phosphorus, calcium, and iron using the methods developed by Brigg,[2] McCrudden,[3] and Kennedy[4] respectively. Carbohydrates were estimated, as in fruits, by N. D. Rege and S. C. Devadatta.[5] Subtracting the total amount of various constituents estimated from the dry weight, the amount of cellulose and other unestimated constituents present was calculated. Kjeldahl's method was adopted for the estimation of protein nitrogen. Full paper will be published elsewhere. The results recorded in the table indicate the mean of six careful estimations.

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[1] Harris & Ray, *Biochem. J.*, 1933, **27**, 303.
[2] Brigg, *J. Biol. Chem.*, 1922, **53**, 13.
[3] McCrudden, *Ibid.*, 1909, **7**, 83; 1911, **10**, 187.
[4] Kennedy, *Ibid.*, 1927, **74**, 385.
[5] Rege & Devadatta, *J. Univ. Bom.*, 1941, **10**, 3B, 74.