VITAMIN B_1 IN INDIAN FOODSTUFFS (CEREALS, MILLETS AND PULSES)

THE vitamin B_1 content of Indian foodstuffs (cereals, millets and pulses) has been determined by the thiochrome method according to the quick and simple procedure developed by Murty and Rau[1] (Method I).

TABLE I

Variety and place of origin	Vitamin B_1 in γ per 100 gms.	
	Method I	Method II
1. Cereals :		
(*a*) *Oryza sativa*		
Co. 9 (Coimbatore)	480	485
Adt. 11 (,,)	360	..
Co. 4 (,,)	400	..
G.E.B. 24 (,,)	310	..
G.E.B. 24 (Mysore)	310	..
G.E.B. 24 (Berhampore)	250	..
Latisail, Amon (Bengal)	210	..
Kataktara, Aus (,,)	220	..
Boro, Jagli (,,)	445	435
Nakanda (Kangra)	210	..
Gurumati (C.P.)	260	..
16 B.K. (Bihar)	260	..
Coimbatore Sanna (Bangalore Market)	235	..
(*b*) *Triticum vulgare*		
——— (Bansi)	340	400
——— (Sarabathi)	420	500
——— (Dharwar)	420	420
——— (Samba)	250	280
2. Millets :		
(*a*) *Eleusine coracana*		335
H. 22 (Bangalore)	330	..
E.C. 593 (Coimbatore)	400	..
E.C. 2985 (,,)	300	..
E.C. 3517 (,,)	370	..
E.C. 3735 (,,)	270	280
E.C. 1540 (,,)	700	..
(*b*) *Sorghum vulgare*		
As. 29 (Coimbatore)	380	400
As. 2095 (,,)	490	..
3. Pulses*		
Cicer arietinum	380	470
Phaseolus mungo	185	510
Dolichos biflorous	70	520
Phaseolus radiatus	260	320
Dolichos lablab†	..	
Cajanus indicus	270	725

* Samples were purchased in Bangalore market.

† The acid extract of the field bean when made alkaline, taken up in isobutyl alcohol and irradiated showed brilliant fluorescence characteristic of thiochrome. Experiments are in progress to find out whether the field bean contains part of its Vitamin B_1 in the oxidised form.

The paddy samples were sun-dried, dehusked and powdered, while the other cereals, millets and pulses (with husk) were powdered and representative samples taken for vitamin B_1 estimation.

The vitamin B_1 content of at least one sample in each group of cereals, millets and pulses was estimated by Pyke's[2] method as modified by Booth[3] (Method II).

The results (average of at least three estimations in each set) are given in Table I.

It is clear from the results of Table I that all the cereals (excepting two varieties of wheat from Bansi and Sarabathi) and millets contain their vitamin B_1 in the free form, while the pulses contain it in combined form to different extents. Horse-gram (*Dolichos biflorous*) contains very little of vitamin B_1 in the free form while most of it exists in the combined form. *Cajanus indicus* contains the maximum namely 720 γ vitamin B_1 per 100 gm.

Another important observation made in the course of this investigation is that the per cent. recovery of added vitamin B_1 (Method I) is very high (70–90) with colourless acid extracts from rice and wheat, and low (50–60) with coloured acid extracts from ragi and pulses. This suggests that the inhibitors (substances which quench the fluorescence of thio-chrome) are associated more with colouring matter.

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[1] Murty and Rau, *Curr. Sci.*, 1941, **10**, 180.
[2] Pyke, *J. Soc. Chem. Ind.*, 1939, **58**, 338.
[3] Booth, *Ibid.*, 1940, **59**, 181.