nervous impulse at the myoneural junction is electrical rather than chemical.

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APPARENT CAROTENE AND VITAMIN C IN DEHYDRATED VEGETABLES

It was reported earlier[1] that the purification of crude petroleum ether extracts of carotene by washing with 90 per cent. methyl alcohol is unsatisfactory because some non-carotene, biologically inactive pigments remain in the petrol layer and are estimated inaccurately as carotene. The degradation products which occur in considerable amounts in stored foodstuffs, can be removed by adsorption on a column of dicalcium phosphate. Similar artifacts have been now shown to develop during the dehydration of vegetables and increase on subsequent storage.

An aliquot of the extract, after phase partition was purified by chromatography and the unadsorbed carotene estimated on the Pulfrich photometer. A considerable portion of the "carotene" in the epiphasic layer consisted of some degradation product exhibiting a non-specific absorption spectrum and being chromatographically separable from carotene. It is reported[2] that carotene is reasonably stable in dehydrated vegetables, but when estimated by this method, the loss appears to be serious.

The vegetables were dehydrated as recommended by Prescott and Proctor[3] and stored in air-tight tins at room temperature.

Mapson's[4] observation that dehydrated vegetables contain reducing substances which interfere with the estimation of ascorbic acid by titration with 2 : 6-dichlorophenolindophenol has been confirmed. Ascorbic acid was determined in vegetables—fresh, blanched, dehydrated, and stored after dehydration—by the method of Harris and Olliver[5] and by the improved method of Mapson where correction can be applied for the non-specific reductants. The results given in Table II indicate that the artifacts which appear to be mainly reductones are developed during the dehydration and increase on storage.

These results emphasise the need for employing the improved technique for the accurate estimation of carotene and ascorbic acid in dehydrated vegetables.

TABLE II.—*Ascorbic acid in mg. per* 100 *g. of vegetable on moisture-free basis*

Vegetable	Treatment	Harris and Olliver's method	Mapson's method	Non-ascorbic acid reductants
				%
Potato ..	Fresh	104	104	0
	Blanched	107	107	0
	Dehydrated	71·0	70·2	1·2
	Dehydrated and stored for 16 weeks	19·7	12·7	35·5
Bittergourd	Fresh	1480	1480	0
	Blanched	1177	1177	0
	Dehydrated	193	154	20·0
	Dehydrated and stored for 8 weeks	130	100	23·2
Cabbage ..	Fresh	549	549	0
	Blanched	439	439	0
	Dehydrated	300	264	11·9
	Dehydrated and stored for 10 weeks	40·2	23·9	40·4
Spinach ..	Fresh	414	414	0
	Blanched	281	281	0
	Dehydrated	92·9	53·9	42·0
	Dehyrated and stored for 9 weeks	0	—	—

TABLE I.—*Carotene μg. per gram of vegetable on moisture basis*

Vegetable	Fresh			Dehydrated			Dehydrated and stored				
	Phase partition	Chromatography	Non-carotene pigment	Phase partition	Chromatography	Non-carotene pigment	Period of storage	Phase partition	Chromatography	Non-carotene pigment	Loss in carotene
			%			%	Weeks			%	%
Bitter-gourd	25·7	25·7	0	24·1	23·6	2·0	8	22·8	16·6	27·2	35·3
Carrots	855	850	0·6	842	812	3·6	8	469	452	3·7	46·9
Spinach	727	—	—	567	428	24·6	9	331	223	30·6	69·3
Cabbage	341	341	0	280	214	23·6	11	155	74·4	52·0	78·2

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