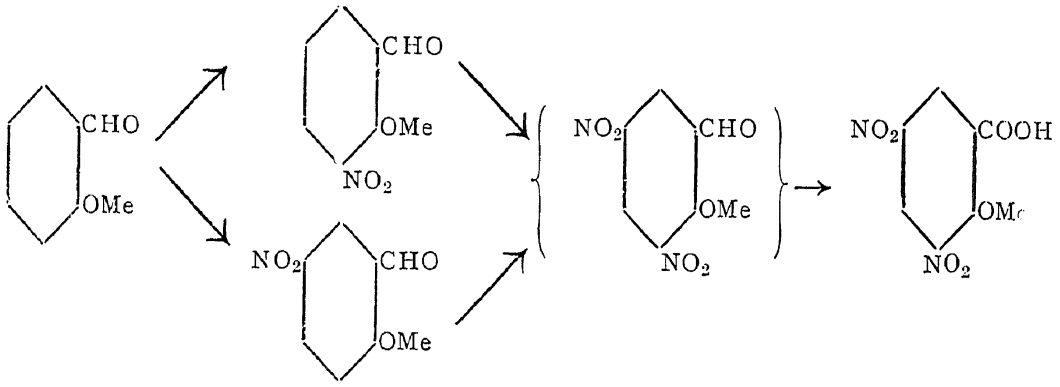

The detailed account of these experiments, and synthesis of Iso-ortho-Vanillin would be published elsewhere and are reserved for a future communication.

S. N. CHAKRAVARTI.

Annamalai University,
June 29, 1935.

[1] *Ber.*, 1887, **20**, 1928.

[2] *J. Indian Chem. Soc.*, 1932, **9**, 174.

[3] Compare Miller and Kinkelin, *Ber.*, 1889, **22**, 1709; Stoermer, *Ber.*, 1911, **44**, 655.

[4] *Ber.*, 1882, **15**, 2027.

[5] *Ber.*, 1884, **17**, 1382.

[6] *J. Chem. Soc. Industry, Transactions*, 1930, **49**, 409.

Ascorbic Acid Content of Some Plant Fluids.

IN an investigation on the occurrence of rich sources of ascorbic acid in Indian food materials, the water inside the coconut fruit and the juice sapped from coconut tree in a similar manner as in the case of date palms, as also juice drawn from the spadix of palmyra palm were examined. These juices and the coconut water are drunk as such and also as toddy (somewhat fermented juice). The following tabular statement gives a synopsis of a few observations :—

TABLE I.

Green Coconut (No Kernel yet formed).

	Volume of Water in one fruit	Natural pH	Volume of Standardised dye = mg. Ascorbic Acid for 10 c.c. Juice at pH·3
Sample 1 ..	340 c.c.	5·0	0·15 c.c. dye
Sample 2 ..	332 c.c.	4·8	0·12 c.c. dye
Sample 3 ..	320 c.c.	4·8	0·12 c.c. dye

TABLE II.

Green Coconut with Soft Kernel.

Sample 1 ..	450 c.c.	4·9	0·15 c.c. dye
Sample 2 ..	225 c.c.	5·0	0·29 c.c. dye

TABLE III.

Ripe and Dry Coconut with Hard Kernel.

Sample 1 ..	40 c.c.	5·1	0·00 c.c. dye
Sample 2 ..	150 c.c.	5·4	0·00 c.c. dye

TABLE IV.

Juice from Date Palm Tree.

	Natural pH	Volume of Standardised dye = mg. Ascorbic Acid for 10 c.c. Juice at pH·3
Sample 1 ..	4·6	1·08 c.c. dye
Sample 2 ..	4·5	1·10 c.c. dye

TABLE V.

Coconut Tree Juice.

Sample 1 ..	4·7	1·60 c.c. dye
Sample 2 ..	4·5	2·00 c.c. dye
Sample 3 ..	4·2	3·00 c.c. dye
Sample 4 ..	4·5	3·00 c.c. dye

TABLE VI.

Palmyra Palm Juice from Spadix.

Sample 1 ..	4·8	1·90 c.c. dye
Sample 2 ..	4·4	1·00 c.c. dye

Expressed juice from ripe pine apple fruits from local markets were also examined and some of the results are here given for comparison.

TABLE VII.

Pine Apple Juice.

Fruit Material	Juice Expressed	Natural pH	Titre for 10 c.c. Juice
Sample 1 100 g.	70 c.c.	4·0	0·20 c.c.
Sample 2 100 g.	70 c.c.	4·2	1·30 c.c.
Sample 3 100 g.	65 c.c.	4·2	1·00 c.c.

In the cases of the pine apple juice it was found that only a fraction of the total ascorbic acid is pressed out. Extraction by trichloro-acetic acid gave very much higher values—4 or 5 times as much.

As indicated above in the tables 1 c.c. of the 2 : 6 dichlorophenol-indophenol dye was standardised equivalent to 1 mg. ascorbic acid.

In the above estimations it may be noted that the volume of the dye required did not vary even after suitable treatment of the juices by mercuric acetate, H_2S, etc.

It will be seen from the above that coconut water loses ascorbic acid as the fruit ripens

and gets dry. Of all the plant saps examined coconut tree juice has been found to be the richest source of ascorbic acid. The quantity of juice yielded by date palm and palmyra palm trees daily is also quite considerable, so that the ascorbic acid excreted is very high. It was noted that the ascorbic acid content did not suffer any change even after spontaneous fermentation for 24 hours.

Further details and the transference of ascorbic acid from the water into the kernel according to age of the fruit etc. will appear in the *Transactions of the Bose Research Institute.*

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Calcutta,
June 25, 1935.

The Cultivation of *Artemisia.*

FOR some time past attention has been directed to the cultivation of *Artemisia brevifolia* from seeds obtained from the santonine yielding varieties of the Kurram Valley (N.W.F.P.) and the Kashmir, with a view to raising the santonine content of the wild species. It has been reported, elsewhere,* that the Kurram *Artemisia* grows well in Dehra Dun, as a garden plant, but the plants divide themselves in two subforms designated as the *x*-form and the *y*-form; the only distinction between the two being that one produced the flower heads early in June and the other did not show any flower heads till late in the year. It was consequently suggested that the one flowering late was the original form and the earlier flowering variety was the acclimatised form. Similar growth has been noted in the case of the Kashmir *Artemisias.* During the first year some of the plants started flowering early (May-June) and the others did not flower till November suggesting again the original and the acclimatised form. Both the Kashmir and the Kurram Valley *Artemisias* have now well established themselves and the later observations have revealed the fact that instead of the two forms stated above there is only one, but that it produces flower heads twice a year and consequently has two periods of maximum santonine content, namely, June and December. The hope that the santonine content would rise on cultivation has, however, not yet been realised. The above observations are rather interesting from the point of view of cultivation of the drug and are therefore reported. The table given below gives the santonine content of the samples collected from the minor forest products gardens of the Forest Research Institute.

Time of collection weeks		Santonine percentage	Remarks
4, August	1933	0·60	Young leaves only
4, October	1933	0·79	Buds only
1, December	1933	0·91	Leaves and buds
1, January	1934	0·78	,, ,,
1, February	1934	0·12	,, ,,
1, March	1934	0·66	Fresh leaves
1, April	1934	0·80	Luxuriant growth but no buds
1, May	1934	0·84	,, ,,
1, June	1934	0·85	Buds making appearance
3, June	1934	0·98	Buds
1, July	1934	0·52	Early rains dropped the buds
1, August	1934	0·22	,, ,,
4, August	1934	0·62	Fresh young leaves

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June 12, 1935.

* Krishna and Varma, *Quarterly Journal of Pharmacy and Pharmacology,* 1933, **6**, 23.

Czapek's Synthetic Medium.

CZAPEK'S formula for synthetic medium has been in use for over thirty years for culturing fungi. It consists of nitrate, phosphate, sulphate and chloride in addition to the organic principle, which is sucrose. It has, from time to time, been modified to suit the requirements of individual workers. In 1910 Dox modified this formula to present in a nearly neutral solution unaffected by sterilisation the elements necessary for the fungous growth. The original formula contained acid potassium phosphate (KH_2PO_4), while in this modified one Dipotassium hydrogen phosphate (K_2HPO_4) was used to obtain a neutral solution. Previous to this Dox[2] had used the original formula in a modified form with different proportions of the constituent salts. Currie[3] in 1917 used acid potassium phosphate for *Aspergillus niger.*

During the preparation of Czapek's solution as modified by Dox it was frequently noticed that the addition of ferrous sulphate solution gave traces of milkiness, while the