THE EFFECT OF LONG PERIODS OF DARKNESS ON FLOWERING IN *SACCHARUM SPONTANEUM* SORAPARAI, 270

IN a previous note[1] a few photoperiodic treatments were suggested for inducing flowering and controlling the times of flowering in sugarcane varieties. One of these treatments, which enabled us to induce flowering in non-flowering wild form *Saccharum spontaneum* Burma, consisted in daily subjecting the potted top halves of this variety to 22 hours darkness for a period of two months prior to the commencement of the flowering season. Recently similar darkness treatments were tried on another type of *Saccharum spontaneum*, *viz.*, S.s. Soraparai, 270, and some very interesting results were obtained which seem worthy of mention.

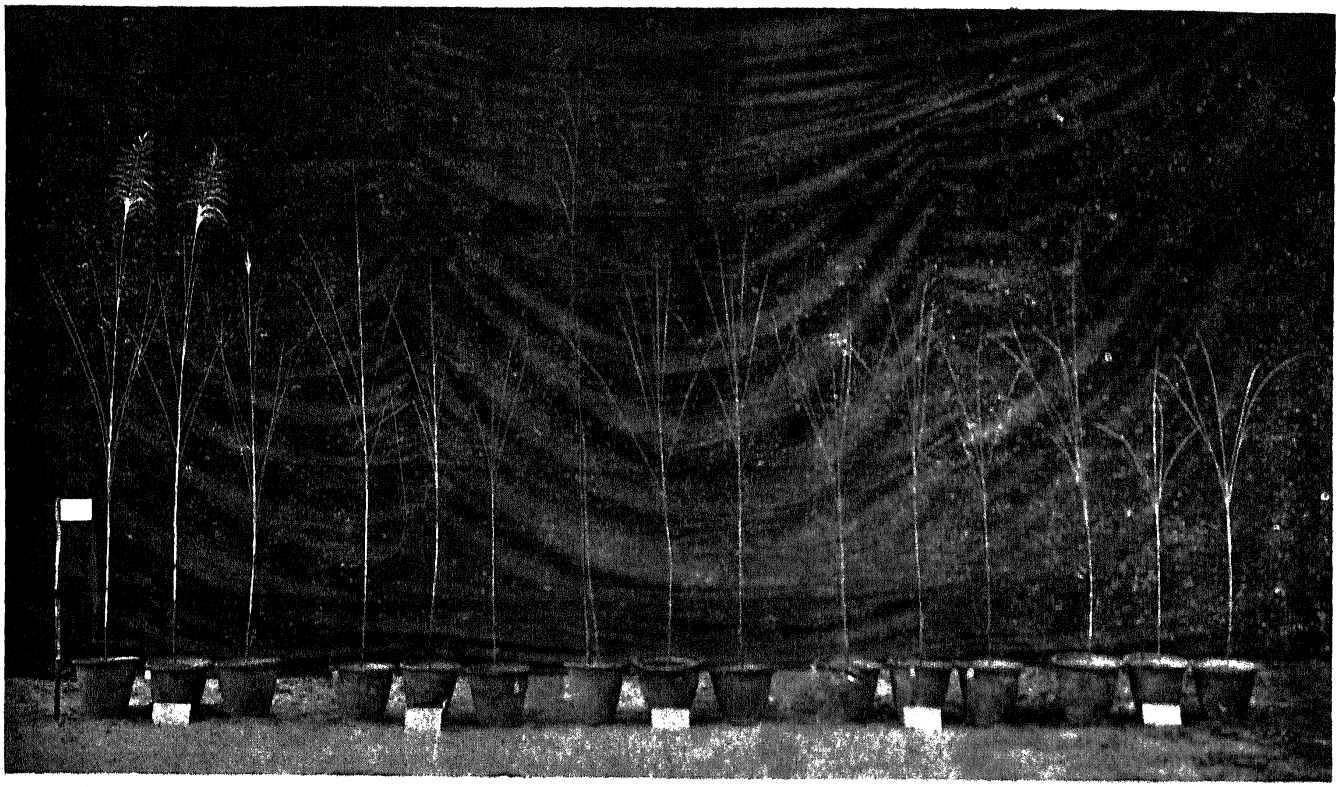
Top portions, removed from six months old plants of the variety S.s. Soraparai, 270, growing under field conditions were used for this study. These were planted upright in medium-sized pots, one in each pot, containing the ordinary garden-land soil. About a month after planting, i.e., when the tops had just resumed growth, the pots were divided into five series, of five pots each, and were subjected to the following five treatments:—

(1) Normal daylight.
(2) Two-hour day only—from 12 noon to 2 p.m.—for a period of 15 days from 10th September to 10th October.
(3) Two-hours day only—from 12 noon to 2 p.m.—for a period of 30 days, from 10th September to 10th October.
(4) Two hours day only, for a period of 45 days from 10th September to 25th October.
(5) Two-hours day only, for a period of 60 days from 10th September to 10th November.

Results.—This variety came to flower on 30th November with the first treatment above (Fig. 1). It flowered on 10th December with the second treatment; on 2nd January with the third treatment; on 9th January with the fourth treatment and on 11th February with the last mentioned treatment, i.e., showing a delay of about 75 days in the time of flowering as compared to the tops kept throughout under normal day-length conditions.

The intensity of flowering declined from 100 per cent. with the first treatment to 20 per cent. with the last treatment, i.e., when subjected to two-hours day for a period of two months.

Thus, with the above treatments it has been possible to make available the arrows of the variety S.s. Soraparai, 270, for hybridisation work, throughout the flowering season.



Normal day light | Daily 22 hours darkness for a period of 15 days | Daily 22 hours darkness for a period of 30 days | Daily 22 hours darkness for a period of 45 days | Daily 22 hours darkness for a period of 60 days

FIG. Showing the effect of long periods of darkness on flowering in potted tops of the variety *Saccharum Spontaneum* Soraparai, 270

The author is indebted to Mr. N. L. Dutt for his keen interest and guidance during these investigations.

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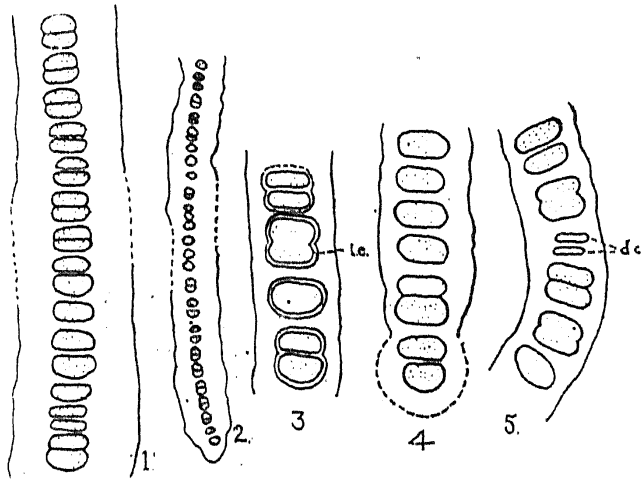
1. Yusuf, N. D., and Dutt, N. L., *Curr. Sci.*, Nov. 1945.

OCCURRENCE OF *JOHANNESBAPTISTIA* IN THE ADAYAR RIVER, MADRAS

THE writer read with interest the paper[3] on *Johannesbaptistia pellucida* (Dickie) Taylor and Drouet[2] collected from a brackish water pool at Ennore, Madras. It is considered to have not been recorded from elsewhere in India. The present alga, however, was found in a huge collection of algæ made by the writer from the Adayar river, Madras. The Adayar alga agrees with the Ennore one in all details regarding structure and development (Text-Fig. 1-5) except in dimensions.



TEXT-FIGS. 1-5. *Johannesbaptistia pellucida* (Dickie) Taylor and Drouet.

Figs. 1 and 2. Portions of filaments with the diffluent margins of the sheath shown in dotted lines. Fig. 3. Portion of a filament showing the individual envelopes of the cells in a common mucilage. Fig. 4. End portion of a filament with a two-celled fragment (shown in dotted line) in the stage of dislodgement from the end. Fig. 5. Portion of a filament with two dead cells (*l.c.*, individual envelope; *d.c*, dead cells). Fig. 1, × 1,200; Fig 2, × 550; Figs. 3-5, × 1,650.

The dimensions of the filaments and cells of the Ennore alga were compared[3] with those given by Drouet[1] for *Johannesbaptistia pellucida* (Dickie) Taylor and Drouet (filament 8-23 μ broad and cells 4-17·5 μ broad and 2-6 μ long) and they come within the range of these dimensions. The dimensions of the present alga also accord with those given by Drouet.

	Ennore alga	Adayar alga
Long. fil. ..	400-2,500 μ	Up to 1,000 μ
Lat. fil. ..	7·9-9·2 (10·8) μ	11·4-15·2 (22·8) μ
Lat. cell. ..	3·9-5·2 μ.	5·8-8·3 (9·5) μ
Long. cell. ..	2·6-3·9 μ	2·4-4·0 (4·8) μ
Cross wag. ..	—	2·6-6·4 μ

This alga is, therefore, referred to *Johannesbaptistia pellucida* (Dickie) Taylor and Drouet, though possessing broader cells and thicker sheath than those of the Ennore one.

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1. Drouet, F., "Myxophyceæ of the G. Allan Hancock Expedition, 1934, collected by Wm. R. Taylor", *The Hancock Pacific Expedition*, 1936, **3**, (2), 15-30. 2. —, "Notes on Myxophyceæ, i-iv," *Bull. Torrey Bot. Club.*, 1938, **65**, 285-92. 3. Ivengar, M. O. P., and Desikachary, T. V., 'On *Johannesbaptistia pellucida* (Dickie) Taylor and Drouet from Madras," *Journ. Ind. Bot. Soc.*, 1946, **25**, No. 3, 117-21.

POLYELECTRONS

In an interesting article which appeared in the *Annals of the New York Academy of Sciences* (1946, 48, 219-38), Dr. Wheeler presents theoretical evidence for the existence of entities composed entirely of electrons and positrons together with a discussion of their properties. The simplest of these entities consists of one electron and one positron, bound together in a structure similar to that of the hydrogen atom. It has a life time of $1{\cdot}24 \times 10^{-10}$ sec., when the spins of the two particles are parallel, and a life several orders of magnitude greater, when the spins are anti-parallel. The next higher entity is composed of two positrons and one electron or of two electrons and one positron. It has a mean life of the order of 10^{-10} sec. The probability of production of a bi-electron by the interaction of an energetic gamma-ray with the field of force of an atomic nucleus is shown to be less than 10^{-6} of that for production of an electron-positron pair. The article contains a discussion of the similarities and distinct differences between polyelectrons and cosmic rays mesons.