A NEW SPECIES OF ZYGNEMOPSIS
(SKUJA) TRANSEAU, 1934
FROM THE CALCUTTA—
1961 NATIONAL AGRICULTURAL FAIR

The alga was collected from the freshwater shallow pool created by the artificial fountain near the second gate of the National Agricultural Fair, Calcutta—1961, at Taratola.

 Zygnemopsis queense Das sp. nov., the species has been established in the following way:

Cells (Fig. 1): Cylindrical, length much greater than breadth. Protoplast contains two stellate chloroplasts with a single massive pyrenoid at the centre. Gametangium filled with dense pectic cellulose-colloid during reproduction. Filaments (Figs. 2 and 3): Unbranched, sexually reproduced by scalariform conjugation; zygote forming at the middle of the conjugating tube (Fig. 4). Lateral conjugation not observed.

Figs. 1-4


DIAGNOSIS

Cells, 80–120 μ by 12–18 μ. Zygotes, 40–65 μ by 35–50 μ; quadrangular and round. Spore wall golden yellow, cytoplasmic remains present during reproduction.

Cellæ 80–120 μ × 12–18 μ. Cellulæ genetivæ 40–65 μ × 35–50 μ; quadrangular et globosæ. Mononium cellulæ genetivæ aureus flavus, reliqua celluli genetivi qui hodie est.

DISCUSSION

It would be a new species of the genus Zygnemopsis distinguishable from the genus Zygnema at the reproductive phase having the cell contents being replaced by refractive pectic material, which may be smooth or lamellated. The specific name could be proposed as Zygnemopsis queense sp. nov., to record the historic visit of Her Majesty the Queen Elizabeth II of England at the National Fair, Calcutta—1961 from where the species had been collected.

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5. —. Cryptograms Botany, 1949, 1

INTRACARPELLARY POLLEN GRAINS
IN Frittillaria and Lilium

INTRACARPELLARY pollen grains were first observed in Batomopsis lanceolata (B.M. Johri) and later in some other plants (see Puri; Adati; Islam; Johri and Eunus; Eunus; Haque; Johri and Bhatnagar; Panchaksharappa2–10). During an investigation on the morphology of the gynoeceum of Frittillaria roylei and Lilium tigrinum, I also observed a similar phenomenon which merits a brief report.

The gynoece of Frittillaria roylei Hook. were fixed in formalin-acetic-alcohol from Hatoo (Narkunda, Simla Hills) in May 1961, and those of Lilium tigrinum Ker-Gawl. from Mussorie in September 1960. They were processed in the usual way. Serial sections cut 8–17 microns thick were stained with a combination of safranin and far green, or Heidenhain's haematoxylin alone or counter-stained with fast green.

Frittillaria roylei—In a cross-section the style shows a hollow, triangular canal which is widest just below the region of division of the style. The latter has three reflexed branches. The bicelled pollen grains were observed throughout the length of the styilar canal (Fig. 1), and occasionally in the ovary. Sections of a single style showed nine pollen grains. In two instances two pollen grains had germinated in the ovary in close proximity to the ovules (Fig. 2). It is to be noted that the average diameter of the styilar canal is 440 microns, whereas that of pollen grains varies from 30 to 40 microns.

Lilium tigrinum—The style is 15–20 cm. long and markedly curved. The stigma is papillate and has three ridges. The styilar canal is broadest just below the stigma and gradually narrows downwards. The pollen grains, which are bicelled, were observed not only in the
ovary; note a germinating pollen grain (arrow-marked) in the locale, x 45. Fig. 3. *Lilium tigrinum*—Longi-
section of middle portion of ovary showing two pollen
grains lying adjacent to ovules (arrow-marked), x 52.
/p/, pollen grain; /pt/, pollen tube; /tt/, transmitting
tissue

stylar canal but also in the ovary (Fig. 3). The
mean diameter of the stylar canal is 2,500
microns and that of the pollen grains 55–70
microns.

How the pollen grains find their way into the
stylar canal and ovary is not clear. Probably
they are sucked into the ovary by some exudate
from the stigma (see Sahni[11]). While the
pollen grains mostly germinate on the stigma,
they often germinate equally well on the sur-
face of the style, in the stylar canal, or even in
the ovary. In both the plants the cells of the
stigmatic epidermis, stylar canal and the
placental epidermis are papillate and generally
uninucleate. In *Zephyranthes lancasterii* some-
times the pollen tubes may enter the style even
through the stomata and make their way into
the transmitting tissue (M. M. Johri, Unpub-
lished). Whether the occurrence and germina-
tion of pollen grains in the stylar canal indicates
any direct or indirect homology with plants
like *Gnetum* (see Vasil[12]), where also the
pollen grains sometimes germinate in the so-
called micropylar tube, is difficult to interpret.
With the present state of our knowledge
perhaps we cannot attach any evolutionary
significance to this phenomenon. Instead, it
seems more important to initiate a detailed
study of the structure of the style and stigma in
relation to pollen tube growth.

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Sci. Congr. (Foona)*, Part III Abs., 1959, 44.
1957, 7, 292.
10. Panchaksarappa, M. G., *Ph.D. Thesis*, Univ. Delhi,
1969.