Lectus in foliis *Thuja orientalis* Linn. Cultura posita in CMI, ad Hort. Kewensem. sub numero 130820.

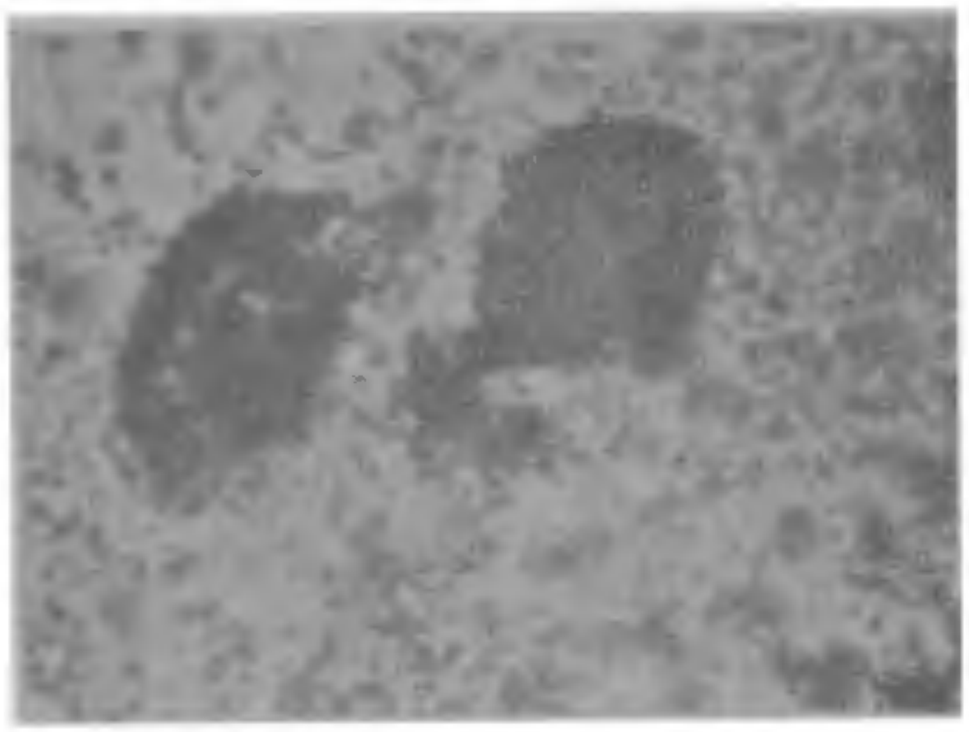

FIG. 1. Photomicrograph of the pycnidia, × 189.

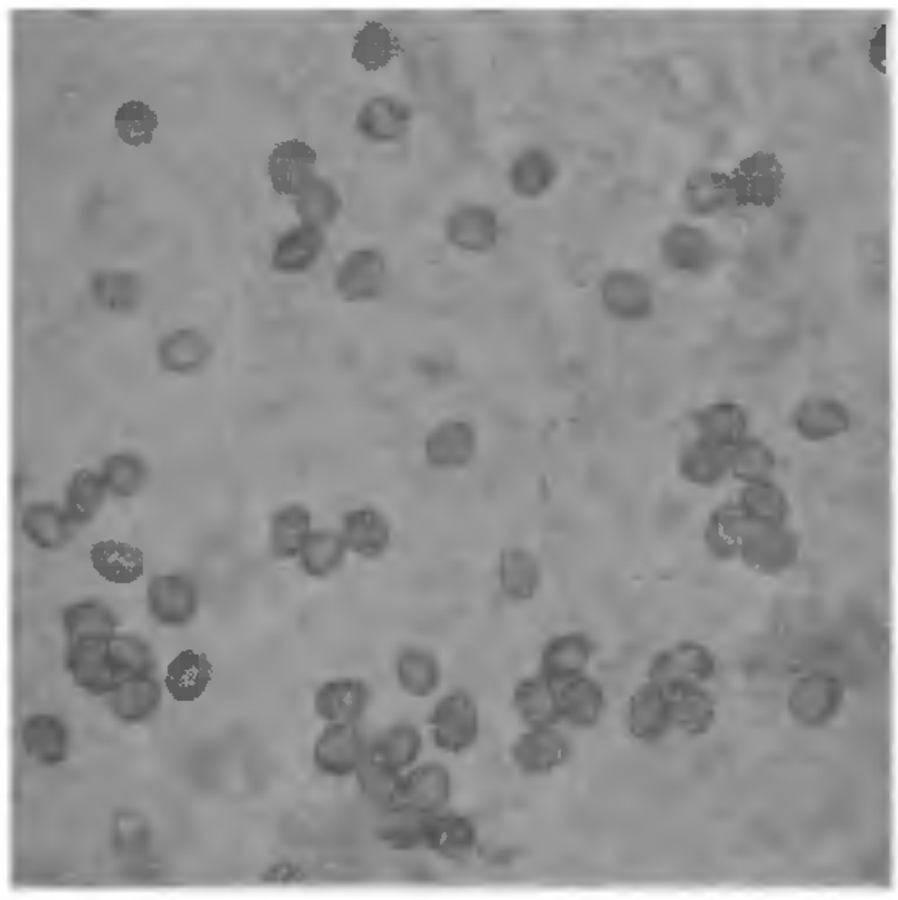

FIG. 2. Photomicrograph of the conidia, × 750.

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## CYTOLOGY OF WILSON'S *CAMELLIA* (*C. IRRAWADIENSIS* BARUA)

BARUA[1] described Wilson's *Camellia* as *C. irrawadiensis* P. K. Barua sp. nov., the original habitat of which is in the Kachin Hills of Upper Burma between 26–27° N and 98–90° E. and at an altitude of 2,300 m. The only known plant of the species exists today at the Tocklai Experimental Station and was raised from seeds collected by L. O. Wilson in 1917 from the area where a plant with somewhat distinct morphological features was found growing wild by the side of the village cultivated Kachin tea. Five plants were raised at Tocklai from the seeds sent by Wilson, only one of which survived and is that described by Barua[1] as *C. irrawadiensis.*

*C. irrawadiensis* resembles *C. sinensis* var. *assamica* (Assam tea) in its morphological features but it differs markedly from *C. sinensis* var. *sinensis* (China tea) and *C. taliensis.* The species can be easily distinguished from the cultivated Assam tea by its anatomical features and chemical constituents, notably in the morphology of leaf sclereids (Barua and Wight)[2] and absence of caffeine (Roberts, Wight and Wood).[3]

The plant is self- and cross-incompatible but in order to explore the possibilities of utilising the inherent vigour of this species in the breeding of tea, and therefore to understand its incompatibility system, cytological investigations on the species were carried out recently at Tocklai. The present paper is a record of the number and morphology of its chromosomes.

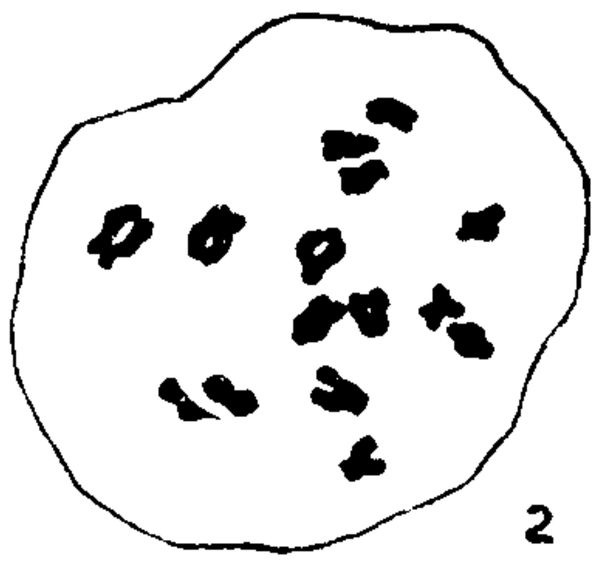
Karyotype was studied from the leaf-tip squashes by the method described in an earlier paper (Bezbaruah).[4] For meiotic studies flower-buds of appropriate size were fixed in 1 : 3 : 6 propionic acid : chloroform : ethanol for 12 hours and stained in 1% propionocarmine. Slides were made permanent following usual methods. The idiogram was drawn on graph paper and then printed on photographic paper by contact process. Copies from the camera-lucida drawings were also made by the same method.

The chromosome number of the species is found to be $2n = 30$ (Fig. 1). Length of the chromosomes varies from $2{\cdot}4\,\mu$ to $3{\cdot}4\,\mu$ with an average diameter of $1{\cdot}0\,\mu$. The total length of the chromosome complement is $85{\cdot}8\,\mu$. According to their length and centromeric

position, the complement can be divided into the following groups :

1. Five pairs of long chromosomes with sub-median primary constriction (3·4 $\mu$ to 3·0 $\mu$).
2. One pair of long chromosomes with sub-terminal primary constriction (3·1 $\mu$).
3. One pair of long chromosomes with both sub-median primary constriction and secondary constriction (3·0 $\mu$).
4. One pair of medium-sized chromosomes with median primary constriction (2·9 $\mu$).
5. Four pairs of medium-sized chromosomes with sub-median primary constriction (2·6 $\mu$ to 2·9 $\mu$).
6. One pair of small chromosomes with sub-terminal primary constriction (2·4 $\mu$).
7. Two pairs of small chromosomes with median primary constriction (2·4 $\mu$).

1



2

3

FIGS. 1–3. Fig. 1. Somatic metaphase plate showing $2n = 30$ chromosomes, × 2,500. Fig. 2. First meiotic metaphase showing 15 bivalents, × 2,500. Fig. 3. Idiogram of the somatic chromosomes of *C. irrawadiensis*.

The long and short arm ratio and the centromere position of each chromosome is graphically represented in the idiogram (Fig. 3).

Meiotic studies reveal that the 15 pairs of chromosomes associate perfectly and form 15 clear bivalents during the first metaphase (Fig. 2). Anaphase separation and the second division have also been observed to be regular, resulting in the formation of four microspores from each pollen mother cell.

Various authors (Darlington and Wylie Longley and Tourje[6]) studied the cytology of different *Camellia* species including tea, the basic number for which is $n = 15$. The present cytological investigations on *C. irrawadiensis* reveal, from both mitotic and meiotic divisions, that this plant is also a diploid with $n = 15$ and $2n = 30$.

Further studies on the incompatibility system and its inheritance in relation to tea are in progress.

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H. P. Bezbaruah.

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