

OCCURRENCE OF HYALINE TRABÆCULAR CELLS IN THE MESOPHYLL OF *DERRIS BENTHAMII*.

In the course of the studies on the foliar sclereids of flowering plants the writers noticed the presence of conspicuous trabæcular cells in the leaf sections of *Derris Benthamii* Thw., which warranted a more detailed investigation. In sections of young leaves there is a single layer of palisade cells contiguous with a layer of collecting cells. Beneath this, a single layer of hyaline rounded cells forms a distinct stratum thus connecting the spongy cells below and the collecting cells at the top.

Observations indicate that as the leaves mature, the hyaline cells elongate considerably transforming themselves into long trabæcular cells (Fig. 1). These broaden out

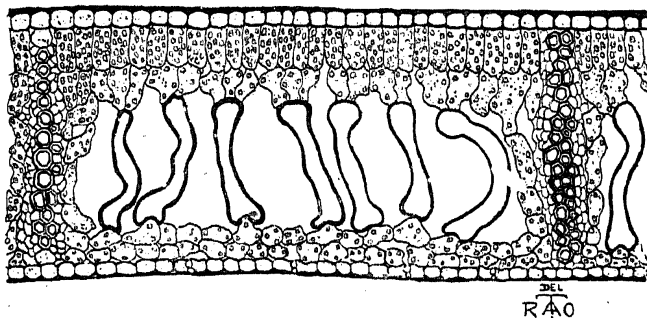


FIG. 1. Trans. section of the leaf showing the disposition of the trabæcular cells. $\times 150$.

at either ends and connect the collecting cells with spongy cells. Large air spaces are differentiated in the mesophyll as small pockets bordered and supported by the trabæcular cells. In early stages, the trabæcular cells possess dense cytoplasmic contents, and considering their articulation with the collecting cells, they appear to take part in the translocation of solutes and plastic materials within the leaf. In the mature leaves however, these cells appear vacuolate and their cell walls become conspicuously thickened with cellulose material. Many of them turn brown due to accumulation of tannin material within their lumen.

Similar, though not so conspicuous, hyaline cells usually termed as 'middle layers' have been recorded in some members of Leguminosæ including species of *Derris*, *Lonchocarpus*, *Pongamia* and others.¹ These cells are also reported to turn brown in later stages due to the accumulation of tannin material but they are never known to elongate into long trabæcular cells as seen in *Derris* species under study.

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1. Solereder, H., *Systematic Anatomy of the Dicotyledons*, 1, p. 258, Oxford, 1908.

SCHIZANTHUS SP. A HOST OF TOBACCO LEAF-CURL VIRUS

DURING January 1949 over 50 per cent. plants of *Schizanthus* sp. in a particular area of the Institute were found to be diseased. The infected plants were stunted and their height was below 12" whereas the normal healthy plants were over 24" in height. The leaves of affected plants were much reduced in size and bronze in colour. In general, the affected plants offered a crowded appearance. The leaves exhibited downward curling and rolling of the margins of leaflets inwards. The severely affected plants failed to produce any flowers, but the less severely affected plants bore comparatively few flowers which failed to set seed. Fig. 1 shows an infected plant of *Schizanthus*.

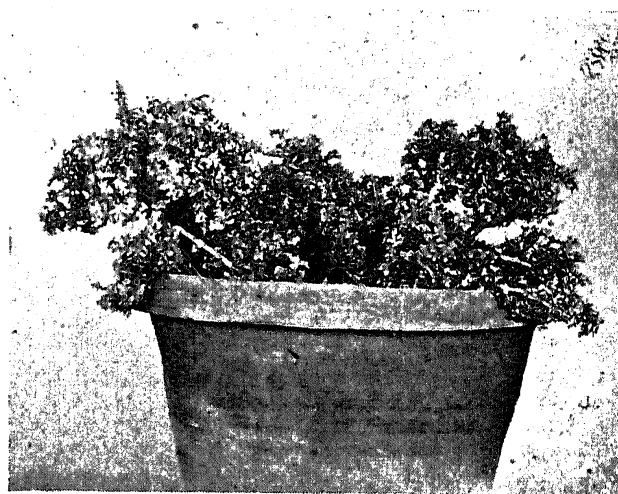


FIG. 1

All attempts to transmit the disease by inoculation with the extract of infected *Schizanthus* leaves in the presence of carborundum powder to *Nicotiana tabacum* L., varieties Harrison's Special and White Burley, *Nicotiana glutinosa* L., *Lycopersicon esculentum* Mill., variety Sutton's Early Market, *Datura stramonium* L.,

Solanum nigrum L., *Solanum nodiflorum* Jacq., and *Capsicum annuum* L., were unsuccessful.

The disease was, however, successfully transmitted by grafting to *Nicotiana tabacum* L., variety Harrison's Special, *Datura stramonium* L. and *Lycopersicon esculentum* Mill., variety Sutton's Early Market.

On *Nicotiana tabacum* var. Harrison's Special, downward curling of young leaves was observed about five weeks after grafting. This was accompanied by puckering and chlorotic areas on lower leaves. The veins on the underside of the leaves showed greening and thickening at certain places which was followed by the development of numerous small sessile, cup-shaped excisions. The leaves were much reduced in size and the plant on the whole was appreciably dwarfed. Fig. 2 shows *Schizanthus* grafted to tobacco plant.



FIG. 2

Datura stramonium exhibited marked downward curling, reduction in size and mottling and wrinkling of the leaves. The symptom picture on *Lycopersicon esculentum* was almost identical with that of *Datura stramonium*.

White flies (*Bemisia tabaci* Gen.) fed in microcages on diseased *Schizanthus* plants for 24 hours when transferred to young plants of *Nicotiana tabacum*, variety Harrison's Special in the insect-proof house successfully produced typical symptoms of the leaf-curl disease.

The importance of *Schizanthus* sp. as a host of the virus lies in the fact that it may serve as a source of infection to other economic crops.

Thanks are due to Dr. R. S. Vasudeva, Head of the Division of Mycology and Plant Pathology, for his guidance.

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A NEW METHOD FOR THE DIAZOTISATION OF AMINES

IN connection with our work on the preparation of a few azodyestuffs from 13-amino benzanthrone, a rapid and easy method for the preparation of the diazonium salt was required. The 13-amino benzanthrone is insoluble in acids under the usual conditions and hence the diazotisation presents a special problem. A. Luttringhans and H. Neresheimer (*Ann.*, 1929, 437, 259-89) have carried out the diazotisation of the above amine using nitrosyl sulphuric acid. The method however is not rapid and easy. We have developed a new method for diazotisation of the amine. The method can be outlined as follows:—

The amine (1 mole) is dissolved in concentrated nitric acid (3 moles). The mixture is externally cooled by ice and salt and is then treated with the calculated amount of sodium bisulphite or sodium hydrosulphite (hydros) dissolved in a small quantity of water. The temperature is not allowed to rise above 0-5° C. At higher temperatures, the reaction proceeds extremely vigorously. The reaction is complete within 3-5 minutes.

The method has been extended to other aromatic amines belonging to the benzene and naphthalene series. In all the cases studied, rapid and successful diazotisation was observed. Further work in this connection, is in progress and a detailed paper on the same, will be published shortly.

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