

stele Syd. and agreed in all features with *X. neolitseæ* Ramak. and Ramak., described recently by Ramakrishnan and Ramakrishnan¹ on the same host species from the same locality. The rust forms conspicuous galls on the leaves and young twigs. Only telia were noticed for the rust. Most of the morphological details have been given by the above authors. It might be mentioned that the teliospores are pedicellate, developing in clusters.

Ramakrishnan and Ramakrishnan state, "two species of this genus have been recorded—*X. echinacea* (Berk.) Syd. on *Actinodaphne molochina* in Ceylon, and *X. litseæ* (Pat.) Syd. on *Litsea glauca* in Japan". They were evidently unaware of the fact that *X. Neolitseæ* Teng was described by Teng² on *Neolitsea* and that Hiratsuka and Yoshinaga³ reported *X. nakanoi* (Kusano and Yoshinaga) Hiratsuka and Yoshinaga on three Lauraceous hosts including *Neolitsea aciculata*. The latter is an opsis rust with peridiate æcia and telia.

Only telia are known for *X. neolitseæ* Teng., where the sori are 144-180 μ broad as against 350-400 μ of the present rust. The teliospores are slightly shorter and broader in the Indian species (40-55 \times 24-30 μ as against 45-65 \times 19-24 μ in *X. neolitseæ* Teng.). The comparatively large telia taken along with the slight differences in the sizes of the teliospores in the *Xenosteles* species under study might be used to separate it from *X. neolitseæ* Teng. Since the specific epithet, *Neolitseæ*, has been used by Teng for a rust distinctly separate from the one under study, the name *Xenosteles indica* Thirumalachar nom. nov. is proposed for the Indian species.

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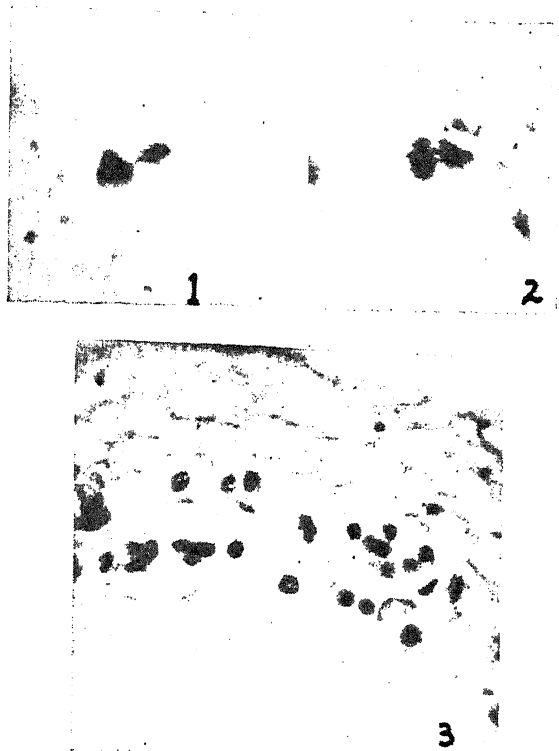
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A CASE OF CYTOMIXIS IN *CROTALARIA MEDICAGINEA* LAMK.

THE chromosome number of *Crotalaria medica-ginea* Lamk. only has been reported by Sundar Rao,¹ as $2n = 16$. For further details, a cytological study of *C. medica-ginea* has been undertaken.

In some root tips, with periblem cells 2-3 thick, situated 3 or 4 layers below the dermatogen remain more deeply stained even after prolonged destaining. In such cells the chromatin material has migrated into the adjacent cells through protoplasmic connections (Figs. 1, 2) resulting in uninucleate cells (Fig. 3). The migrated chromatin material is more deeply stained than the rest of the cell. Cytomixis,² as it is termed, is not peculiar to any particular stage, but is reported to occur in all stages of division of p.m.c., viz., in interkinesis³ both divisions,⁴ and in the resting stage.⁵ In root tips, however, only two cases have been reported so far by Jacob in *Clitoria ternata*⁶ and in cotton.⁷

Gates² considers that the conspicuous openings or connections between p.m.c., allow an equalisation of pressure in the mother-cells



FIGS. 1-2 Extension of chromatin material.

1. Through one protoplasmic connection, 2. two connections.

FIG. 3. Multinucleate cells in periblem region, a result of cytomixis.

from one end of the anther to the other. The movement of the nuclei towards the periphery and the nuclear extrusion are believed to occur in connection with this pressure-equalisation. This process is observed more frequently in the chloralised cells than in the normal p.m.c. of *Vicia faba*.⁸ Cytomixis is reported to result in abnormalities like increased chromosome number, as in rice⁹ and in disintegration of *Triticum* and *Aegilops*,¹⁰ and disintegration of cells.

Though the continuity of affected cells as a ring in the root tip of *C. medica-ginea* supports the idea of pressure-equalisation, this 'pressure' seems to arise as an abnormality, as is evidenced by the presence of isolated single or groups of cells in the perome. In this case cytomixis appears to be pathological, leading to disintegration of cells.

The chromosome number is also determined in mitosis and meiosis and is found to be 16 and 8 respectively as reported previously.¹

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