

## A NEW RUST ON *PREMNA TOMENTOSA* WILLD.

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*Premna tomentosa* is common in the foot-hills of the Nilgiri mountains, in the neighbourhood of Kallar (Coimbatore District). In the months of December and January it is affected by a rust.

The uredosori are formed on the lower surface of the leaves. They are minute, crowded, pulverulent, mixed with the tomentum of branched hairs and in mass having a tawny olive colour. The sorus bursts through the epidermis. A peridium is lacking but two or more rows of paraphyses are present all round the periphery of the sorus. These are incurved forming a pseudoperidial structure (Figs. A and D). The paraphyses are one to two septate, with the terminal cell long, often bent and club-shaped. The wall is irregularly thickened and light yellowish brown, rarely hyaline. The uredospores are borne singly on stalks. They are oval or elliptical, prominently echinulate, brownish yellow in colour but with a hyaline spore wall. The spores measure  $29.5 \times 19.5 \mu$  (the range being  $18.6 - 31.0 \times 15.5 - 21.7$ ).

The teleuto-sori are hypophyllous and columnar. The telial columns are solitary but produced near each other. They originate from the sub-epidermal portion and are surrounded by two or more rows of clavate, incurved brown paraphyses as in the case of uredosori. The columns are filiform, tendril-like and many of them are intertwined. Each column is about 5-6 mm. in length and  $25-35 \mu$  in thickness made up of 5-7 rows of closely united cells. The teleutospores are one-celled, sessile, oblong, yellow-ochre in colour and measure  $28.5 \times 8.7 \mu$  (range being  $17.1-44.9 \times 4.7-12.4$ ). All the spores are closely united together (Plate V, Fig. B).

The teleutospore is capable of immediate germination. When portions of the telial columns are floated on drops of water kept on a slide inside a moist chamber, germination takes place in 8-10 hours at room temperature ( $28^{\circ}\text{C}$ ). A stout, 4-celled basidium grows out of the spore. From each

cell a short sterigma develops and on this a hyaline round or oval basidiospore is formed (Plate V, Fig. C).

Petch (1911) has described *Cronartium premnæ* on *Premna corymbosa* R. and Willd. from Ceylon. Sydow (1918) amended this as *Crossopora premnæ* (Petch) Syd. The uredospores of this fungus are stated to be 20–28 by 16–19  $\mu$ ; thick-walled, hyaline clavate paraphyses are present in the uredosorus. The teleutosori are several millimetres in length and about 50  $\mu$  in diameter and the spores are 40–58  $\times$  8  $\mu$ .

The rust on *Premna tomentosa*, however, belongs to the genus *Crossopora*. Since the uredosorus has no peridium but has a ring of incurved paraphyses round it, this rust cannot be a *Cronartium* but only *Crossopora*.

The rust on *Premna tomentosa* differs from that recorded on *P. corymbosa* in having thinner telial columns and smaller teleutospores. Since it has not been recorded before and is new it is described as *Crossopora premnæ-tomentosæ*.

*Crossopora premnæ-tomentosæ* sp. nov.—Uredosorus hypophyllous, minute, crowded, erumpent, pulverulent, with a ring of incurved, 1–2 septate light-brown paraphyses; uredospores oval to elliptic, echinulate, contents brownish yellow, wall hyaline, 29.5  $\times$  19  $\mu$ ; teleutosorus hypophyllous, filiform, surrounded by a ring of several rows of paraphyses at the base, dark brown, 5–6 mm. in length, 25–35  $\mu$  in diameter, teleutospores sessile, one-celled, united, oblong, yellow-ochre in colour 28.5  $\times$  8.7  $\mu$ .

*Habitat*.—In living leaves of *Premna tomentosa* Willd. at Kallar, Coimbatore District, January 6th, 1946 (Soumini and Krishnamurthy). Type specimen deposited in the herbarium of the Government Mycologist, Coimbatore.

*Crossopora premnæ-tomentosæ*.—Uredosoris hypophyllis, minutis, gregariis, erumpens; pulverulentus, paraphysibus, numerosus, 1–2 septatis, introrsum curvatus, levi brunneis; uredosporis, ovatis, v. ellipsoides, echinulatis, flavo brunneis, 29.5  $\times$  19  $\mu$ ; episporio hyalinis; teleutosoris, hypophyllis, filiformibus, circumdatum annulo gradum multorum paraphysium basi, fuscum, 5–6 mm. long, 25–35  $\mu$  lat.; teleutosporis arctecconnexis, oblongatis, 28.5  $\times$  8.7  $\mu$ , flavus ochraceus.

*Hab.* in vivis foliis *Premnæ tomentosæ* Willd. Kallar, Coimbatore District, 6–1–1946 (Soumini and Krishnamurthy).

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EXPLANATION OF PLATE

- A. Photomicrograph of a uredosorus ( $\times 400$ ).  
B. Photomicrograph showing portions of telial columns and some uredospores ( $\times 400$ ).  
C. Germination of teleutospores ( $\times 600$ ).  
D. Drawing of a section through a uredosorus ( $\times 1020$ ).