

soft yellow mass, melting at 70°-80° C., was left, from which no crystalline derivative could be obtained, but still it gave sterol reactions. Detailed characterisation of the fractions is also being done.

The residue from petroleum-ether extraction was extracted in the cold with chloroform. The extract was concentrated to a small bulk, and four times its volume of ether added to isolate any scandenin present which is sparingly soluble in ether. No solid separated even after standing for some days in an ice-chest indicating the absence of scandenin.

Further work on the other constituents of the seeds has also been taken up.

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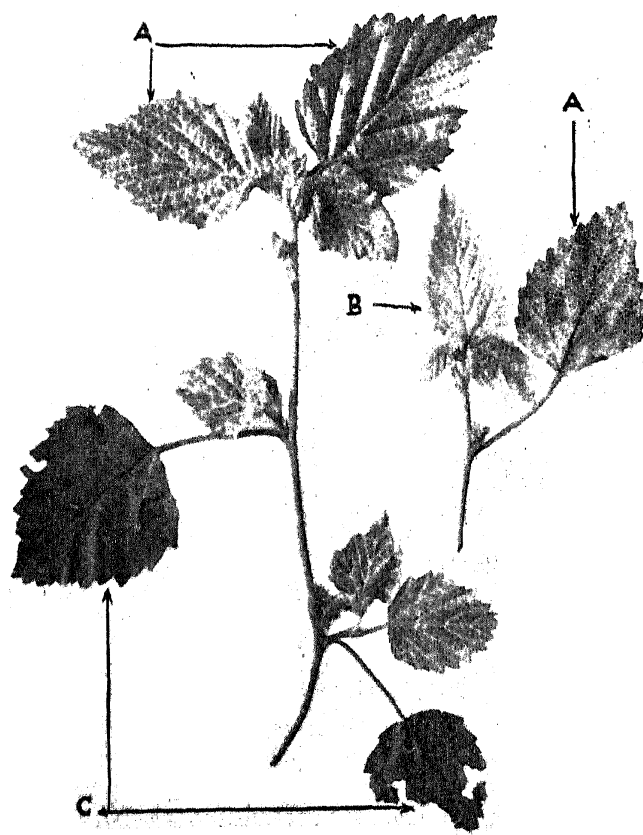
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4. Holman, "Vegetable Insecticides," *Imp. Inst. Bulletin*, 1940.
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MOSAIC DISEASE OF MALVASTRUM COROMANDELIANUM GARCKE

Malvastrum coromandelianum Garcke* (Syn: *Malvastrum tricuspidatum*, A. Gray, and *Malva coromandeliana* Linn.) belonging to the Natural Order Malvaceae, is an introduced weed common in roadside and waste places in several parts of India. I have had under observation for some time in Bangalore a vein-clearing mosaic of this plant hitherto unreported in the literature of the subject. The first symptom on young and old leaves is a clearing of the veins (A in Fig.), the interveinal areas being green. In very old attacks, the affected leaves show a general yellowing (B in Fig.). The vein-clearing symptom is prominent on young leaves. Old leaves remain green. Some branches of infected plants are green and healthy. In many cases old leaves may be green, while the branches arising from their axils are chlorotic (C in Fig.). Affected leaves do not show any malformation or rugosity, except a reduction in size. There is a tendency in some cases for the leaves to show an upward curling. No enations or foliar growths as have been described for the virus disease of Sakel cotton occur in *M. coromandelianum*. There is a dwarfing of the entire plant. The condition resembles the vein-clearing mosaic of bhendi (*Hibiscus esculentus* L.), of Uppal, *et al.*¹ and the A-type of infectious chlorosis described by Hertzsch² for *Kitaibelia vitifolia* (Malvaceae). It has no resemblance to the A-type infectious chlorosis of *Abutilon indicum*, and *Sida napaea*, described by Hertzsch² where the leaves have no chlorophyll, and are small and crinkled.

The symptoms are very similar to those of transparent kroepoek (leaf-curl) of tobacco characterized by a curling of the leaves towards the ventral side, and the clearing of the veins, enations being absent.

Mosaic diseases of the wild plants of the Malvaceae, do not appear to have received the attention in India that their possible connection with the mosaic diseases of the cultivated crops of the same family like cotton and bhendi (*Hibiscus esculentus* L.) would seem to justify. *Malvastrum* is a genus of plants very closely allied to *Malva*, *Sida*, *Abutilon*, etc. Pruthi and Samuel³ barely mention a virus on *Sida rhombifolia*, which they say is the same as



A. Young leaves showing vein-clearing; B. Leaf showing general yellowing and upward curling; C. Green leaves from the axils of which chlorotic branches arise.

that causing leaf-curl in tobacco. Uppal, Patel and Kamat⁴ list a virus only on *Hibiscus esculentus*. According to Uppal *et al.*¹ the first symptom of this yellow mosaic of bhendi is the clearing of the veins; there is no marked mosaic, but only a general chlorosis in the young leaves which may or may not show patches of light green. They were able to transmit the virus with the aid of the white fly, *Bemisia gossypiperda* (according to Pruthi and Samuel,³ Sylvestri considers *B. gossypiperda* to be a synonym of *B. tabaci*, which they have found feeding on *Sida rhombifolia* and *S. cordifolia* among other plants) to *Althaea rosea* and back to bhendi.