

Oil	Aniline Point—° C.
Groundnut oil ..	16.7
Coconut oil ..	3.2
Sesame oil ..	8.1
White oil I ..	97.5
" II ..	92.5
" III ..	93.8
" IV ..	107.0
" V ..	108.8

There is thus a large difference between the Aniline Points of the three edible oils on the one hand and of the white oils on the other. It should, therefore, be possible to estimate the mineral oil content down to one to two per cent. The following table gives experimentally determined 'Aniline Points' (uncorrected) for mixtures of groundnut oil and white oil I.

% White oil	Aniline Point—° C.
0	17.0
1.1	18.0
2.0	19.0
3.0	20.0
10.9	27.1
19.7	35.2
30.0	45.0
40.0	52.8
100.0	97.0

These points are to be taken more as indicating their change with composition rather than showing any exact relationship with it. A closer investigation of the various factors involved and of the use of Aniline Point in the field of fatty oils is in progress.

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AN EASY METHOD OF OBTAINING EPIDERMAL PEELS OF GRASS LEAVES

THE grass leaves, on account of their anatomy, offer considerable difficulty in removing sufficiently large and satisfactory peels of the epidermis. The usual method of raising the epidermis with a sharp razor or scalpel and peeling off with a pair of forceps fails very often with the grass leaves. One usually gets a tear with the vascular bundles attached. Large peels, especially, with the stomatal tissues are necessary when comparisons of different varieties are undertaken. Prat¹ obtained excellent peels by working away with sharp scalpels and removing the overlying epidermal, chlorophyllous and vascular tissues. When the upper epidermis is required the teasing is to be begun from the lower layer, and *vice versa* for the

lower epidermis. This method works very well with leaves of the dicotyledons, especially those with fewer vascular tissues, e.g., groundnut, field beans or lablab and such plants. This technique would be too slow for treatment of materials like paddy in which we had to obtain preparations of a number of varieties, preparations of various positions of the same leaf, those of the leaves of various ages of the same plant, etc., for computing the number of silicated cells amongst the different bands of epidermal cells as rice cells, dumbbell-cells, long epidermal and short epidermal cells, bulliform tissue, stomatal tissue and so forth, the area of the silicated cells in the different kinds of tissues comprising the epidermis, etc., in the evaluation of the role of silica in the resistance to blast disease.

We tried some of the maceration methods to obtain the peels quicker. Bits of paddy leaf treated with the common macerater, concentrated nitric acid with potassium chlorate, gave some peels. The disadvantage in this method is that the middle lamella becomes dissolved and the individual cells are separated with the least pressure. The macerater used in the diatom preparations was next tried. In this the leaf is boiled in a 1 : 4 or 1 : 5 concentrated sulphuric acid to which a few crystals of potassium dichromate is added in a test-tube. The contents of the test-tube are then emptied into a dish of water. After a brief washing, to remove the excess acid, the leaf bits are teased out. The exact time required for completion of the reaction should be judged by trial. Over-boiling spoils the preparations and must be avoided. On teasing out, excellent large peels are easily separated. The middle lamella being intact, entire tissues will separate out. The upper and the lower epidermis can be distinguished by the presence of the bulliform cells. Peels taken this way are not damaged in any way and hence are best suited for the study of the epidermal structures. When such peels are stained with Grob's² stain (Phenol and Safranin) the silicated cells stand out bright and shining and highly refractive. The non-silicated cells take on the red colour while the silicated cells remain unstained.

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A MOSAIC DISEASE OF *DATURA ALBA* NEES

A MOSAIC disease affecting *Datura alba*, first observed in Poona in August 1939, has since been collected from several places in the Bombay Province.

The symptoms of disease are light green and dark green mosaic accompanied by large blister-like patches of dark green portions of leaf lamina which is much distorted and reduced in

size (Fig. 1). Diseased plants look pale due to their leaves becoming yellowish green at advanced stages of infection. Flowers are also severely malformed and distorted, but the diseased plants are seldom dwarfed.

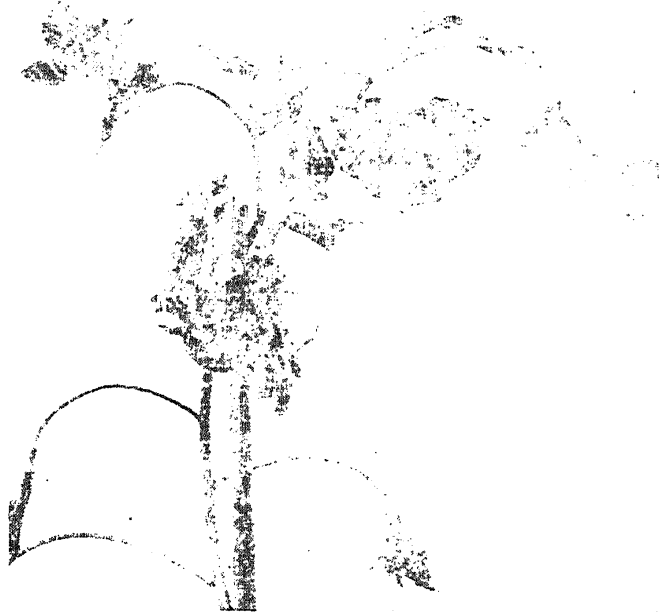


FIG. 1. A diseased *Datura alba* plant showing malformed leaves and flower

In nature, *Datura fastuosa* Linn., is also affected with the virus, but the symptom of disease is only a mild mosaic mottle.

The virus withstands heating for 10 minutes at 60° C., retains infectivity (a) at a dilution of 1 in 10,000, and (b) after storage for 13 days at laboratory temperature (80° F). It withstands treatment with 95 per cent. ethyl alcohol for 30 hours at 45° F.

The virus is readily transmitted by sap inoculation and by grafting, but not through seed. It is also transmitted by *Myzus persicae* Sulz. from diseased *Datura fastuosa* to healthy plants of the same species as also to *Datura alba* under controlled conditions. In some cases only this aphid transmitted the disease from *D. alba* to *D. alba*.

In addition to *Datura alba* and *D. fastuosa*, the virus also infects tobacco, petunia and potato, and produces local necrotic lesions in *Datura stramonium* and *Nicotiana glutinosa*, but is not infectious to *Phaseolus vulgaris*, *Vigna sinensis* and *Solanum melongena*.

Smith (1937)¹ has described a virus disease affecting *Datura stramonium*, and has designated it as *Datura virus 1*; and Thomas and Krishnaswami (1939)² have designated the "little-leaf" virus of brinjal as *Datura virus 2*. The virus affecting *Datura alba*, described in this note, has no affinity whatsoever with *Datura virus 2*; and also shows a marked difference from *Datura virus 1* in respect of the physical properties, its inability to cause disease in *Phaseolus vulgaris* and *Vigna sinensis*, and the production of only local infection in *Datura stramonium*. Accordingly, it is considered that the disease of *Datura alba* is caused

by a new virus not described previously. It is suggested that the virus be known as "distortion mosaic" of *Datura alba*, and *Datura virus 3* according to the classification by Smith.¹

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YELLOW MOSAIC OF *PHASEOLUS LUNATUS* L.

In December 1939, a large number of double bean (*Phaseolus lunatus* L.) plants grown on the Agricultural College Farm, Poona, showed characteristic mosaic pattern on their leaflets. Tests with the disease proved it to be caused by a virus. This disease has also been collected from several localities in the province.

On inoculation the disease takes 20 days to a month to appear in double bean seedlings in the insect-proof glasshouse at Poona. The first symptoms of disease are the appearance of faintly discoloured patches scattered over the laminae of leaflets. These patches gradually become bright yellow as the leaf grows to maturity (Fig. 1). Occasionally the entire leaflet becomes chlorotic.



FIG. 1. A leaflet of diseased double bean plant showing bright yellow chlorotic patches

The affected plants are not dwarfed, but continue to grow and bear normally. However,