

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, dumbbells, 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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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

1. Prat, H., *Annal. des. Sci. Nat. Bot.*, 1932, T. 14, 118. 2. Grob, A., *Bibliotheca Botanica.*, 1896-97, T. 14, 36, s. 1.