MATERIAL AND METHODS

The research material for the present investigation was collected from different localities in the Panjab plains and Mussoorie hills (U.P.). Some material was also collected from Ahmedabad (Gujrat), Ajmer (Rajasthan) and Srinagar (Kashmir). A few cultivated species are also included within the scope of this work. The specific localities from where the material was collected are appended in Table I.

For cytological studies the material was fixed in 1:3 acetic-alcohol and/or Carnoy's fluid. The material was transferred in 70% alcohol after 24 hours. The squashing was accomplished by the usual aceto-carmine technique. In some of the cases, the addition of a few drops of iron-acetate solution in aceto-carmine improved the stainability of the chromosomes. The slides were made permanent in Euparol. Pollen fertility was ascertained by their capacity to stain with aceto-carmine.

For embryological studies the material, at different stages of development was fixed in F.A.A. (formaline 5 ml;
glacial acetic acid, 5 ml; 50% alcohol, 90 ml). The material was then stored in 70% alcohol after 24 hours fixation. Dehydration of the material was accomplished with xylol-alcohol series as well as with tertiary-butyl alcohol with both giving equally good results. Usual techniques for embedding in paraffin were followed. Dehydration and penetration of the seeds presented some difficulties. Therefore, the seed coat was removed before processing the material.

Depending upon the age and size of the material, the sections were cut from 5-16 u in thickness. The preparations were stained with safranine and fast green combination and mounted in Canada balsam. Pollen was stained with aceto-carmine for determining the number of nuclei it contained at the time of shedding. Whole mounts of endosperm and embryo were cleared with lectophenol, stained with cotton blue or carmine and mounted in 50% glycerine.

The voucher specimens are deposited in the herbarium of the Panjab University.