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POLYMORPHIC MULTI-MICROCYTES IN *JASMINUM PUBESCENS* WILLD.

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JASMINUM PUBESCENS Willd is a well-known ornamental plant for its fragrant flowers and it is multiplied only by vegetative propagation. One of the major problems in the life cycle of this ornamental plant is the failure of seed-set. This plant species is indigenous to the temperate and paleo-tropical regions and has also been reported to be male sterile¹, although exhibiting normal meiosis. However, during the course of studies on the cytogenetic behaviour, several interesting cytological irregularities were observed during meiosis I and II.

The chromosomes appeared sticky and in an appreciable number of cells, the metaphase commenced with irregularities. The chromosomes in these plates exhibited a disturbed behaviour; a few chromosomes arranged themselves in the vicinity of the equatorial plate. Further, during the chromosome separation to the poles, the amount of movement and the manner of chromosome passing to each pole varied.

Abnormalities were also observed in metaphase II; however, the grouping of the chromosomes at the equator was largely anomalous and they remained scattered all along the spindle. The multi-polar separation of the chromosomes in different phases of meiosis ultimately resulted in an increase in the number of nuclei at telophase II. In addition to the chromosomal aberrations, abnormal cytokinesis was fairly frequent, resulting ultimately in the formation of polymorphic multi-microcytes (figure 1). These micro-



Figure 1. Polymorphic multi-microcytes in *Jasminum pubescens*.

cytes formed were of varied size and ranged in number from 4 to 11 per pollen mother cell.

Moreover, a few microcytes were found to be of special interest in their being vacuolated with scanty cytoplasm, indicating under-development and ultimately leading to a large scale degeneration. The tapetal layer also remained massive throughout meiosis and persistent even during the maturation of the microspores. It disintegrated completely only prior to anthesis. The failure of the tapetal cells to degenerate at the proper stage, therefore, seems to be one of the causes for non-production of the viable microcytes, as reported earlier in *Lilium usitatissimum*².

All these factors, viz chromosomal aberrations and retention of tapetum, made the genetic complement imbalanced in the microsporocyte which resulted in the expression of polymorphic non-viable pollen grains.

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