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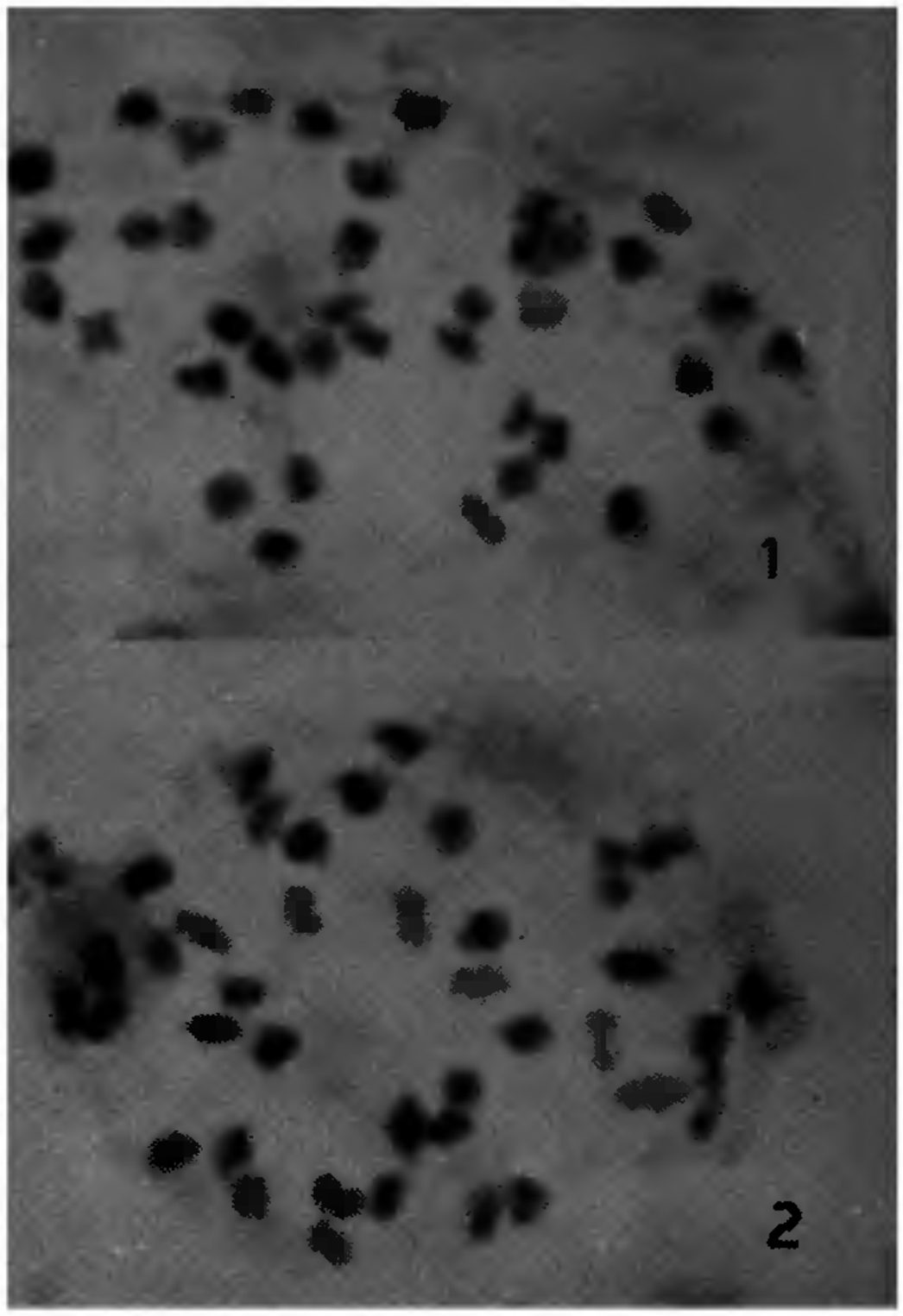

Figures 1 & 2. 1. Diakinesis—39 II. **2.** Prometaphase—39 II. (All × 1500).

INTRASPECIFIC POLYPLOIDY IN *MIMOSA PUDICA* LINN.

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THE genus *Mimosa* Linn. (Mimosaceae) is indigenous to Tropical America and contains nearly 300 species[1]. *Mimosa pudica* Linn., the sensitive plant grows commonly in all hot, moist localities and is naturalised more or less throughout India as a gregarious weed. While screening a large collection of the species from different localities, in addition to earlier reported tetraploidy, hexaploid cytotypes were also identified for the first time. The meiotic behaviour of the hexaploid type is described in this communication.

For the present study, materials were collected from different districts of Kerala. Young floral buds were fixed in Carnoy's fluid (6:3:1). Following the conventional techniques, the buds were stained and squashed in 1% iron-acetocarmine. In each collection screened, fifty pollen mother cells were analysed. At diakinesis and prometaphase, 39 bivalents could be counted clearly (figures 1 and 2). In general, ring bivalents with terminal chiasmata were preponderant. Occasionally a few rod bivalents were found to disjoin precociously. Metaphase I was not clear due to characteristic stickiness of the chromosomes. However, anaphase I and subsequent divisions were quite normal and pollen stainability was 98%. Profuse pod formation was also noted.

Previous reports of chromosome number in *M. pudica*[2-6] shows $2n=52$ as the somatic number. Mimosaceae is polybasic[7] and $2n=52$ seems to be tetraploid, based on $x=13$; the basic number found in most of the modern genera of the family which itself may be of polyploid derivation[8]. Unlike the other species of the genus, so far there is no report of diploidy or any other ploidy level for *M. pudica*. The present count shows a somatic number of $2n=78$ and is probably a hexaploid. The absence of any multivalents and occurrence of 39 complete bivalent formation indicates the allopolyploid nature of the taxon. The present taxon with its perennial rhizomatous

habit and efficient mechanisms of dissemination like presence of bristly pods, persistent sutures, seeds with a long dormancy period, etc., has helped it to evolve as a weed that spreads very fast and is difficult to eradicate. Its weedy habit has been further invigorated by polyploidy coupled with out-breeding.

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ENHANCEMENT OF *IN VITRO* POLLEN GROWTH OF *CYAMOPSIS TETRAGONOLOBA*

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THE requirements of pollen to germinate in an artificial medium vary with species. Pollen of some species germinate even in distilled water, while that of others requires either simple or mineral supplemented sugar medium. Even in standard medium containing sucrose, calcium and boron, pollen of a few species show very poor germination and under such conditions the medium is supplemented with various growth substances to improve pollen germination. The present study is to find out whether addition of a few chemical substance to the pollen germination medium can cause enhancement in pollen germination and tube growth of *Cyamopsis tetragonoloba* and also to understand how far the *in vitro* pollen growth could be manipulated which might throw some light on the control of pollen growth *in vivo*. In addition to the effect of added growth promoting substances like indole acetic acid (IAA), gibberellic acid (GA) and cytokinin on *in vitro* pollen growth, addition of compounds like EDTA and ascorbic acid, which are reported to be related to IAA action has also been studied.

Fresh pollen of *C. tetragonoloba* were cultured by 'hanging drop' method using the basal medium, consisting of sucrose (25%), calcium nitrate (0.03%) and boric acid (0.01%), as the control. Although 93.5% of *C. tetragonoloba* pollen are fertile, only 40.5% germinate in sucrose solution (25%). When sucrose was supplemented with optimal concentrations of calcium chloride (0.03%) and boric acid (0.01%), an increase in the percentage of germination (55%) and tube length (1008 μm) was observed. Experiments were also carried out supplementing various concentrations of IAA, GA, Cytokinin, EDTA, and ascorbic acid independently and also in combination with one another. In the present communication data relating to optimal concentrations—pertaining to pollen germination and tube growth—are presented (table 1). Measurements were taken after 4 hr of incubation and each experiment consisted of a minimum of five replicate sowings. Percentage of germination was calculated by taking an average of 50 microscopic fields and pollen tube length by an average of 10 maximally grown pollen tubes. Pollen fertility was calculated using Alexander's stain[1]

All the growth substances tested showed promotive effect at optimal concentrations when added individually to the basal medium but a combination of all of these resulted in inhibition (table 1). IAA enhanced the percentage of germination by 30% over the control at 0.0001% and increased the tube length (1489 μm) signficantly by 48% at 0.00004%. Higher concentrations of IAA induced the formation of paired pollen tubes in a few pollen grains. On the other hand, a marginal increase in pollen germination by 11% was observed at lower concentrations of GA (0.00005%), whereas a higher concentration of GA (0.0002%) enhanced the pollen tube length (1577 μm) by 56%. The effect of cytokinin is relatively small on pollen germination but pollen tube length is promoted by 32%. Addition of EDTA did not affect germination whereas pollen tube length was promoted significantly (55%). A marginal enhancement of pollen germination and tube length was observed with the addition of ascorbic acid. When all the growth substances were added in a mixture to the basal medium, as a test for synergistic effect, inhibition of pollen tube length was observed (table 1).