species. The species is known to discard its whole byssus apparatus and form a new one on arriving at the next point of attachment. In the laboratory for instance, one individual had been observed to discard byssus apparatus as often as six times in the course of 24 hours, each time forming 7, 11, 13, 20, 18 and 7 threads.

Young and Crisp[2] showed that the size of the disc in *M. edulis* is influenced by the surface, the polar surfaces showing lesser sizes than the non-polar. They have also observed a variation in adhesive force of the order of 2 decades between high and low energy surfaces. In the present study on *M. sallei*, no such correlation between the area of adhesion and the polarity was observed. However, the adhesive strength on polar surfaces like slate and glass was four times greater than that on the non-polar surface of teflon.

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CYTOMIXIS IN PLANTAGO OVATA

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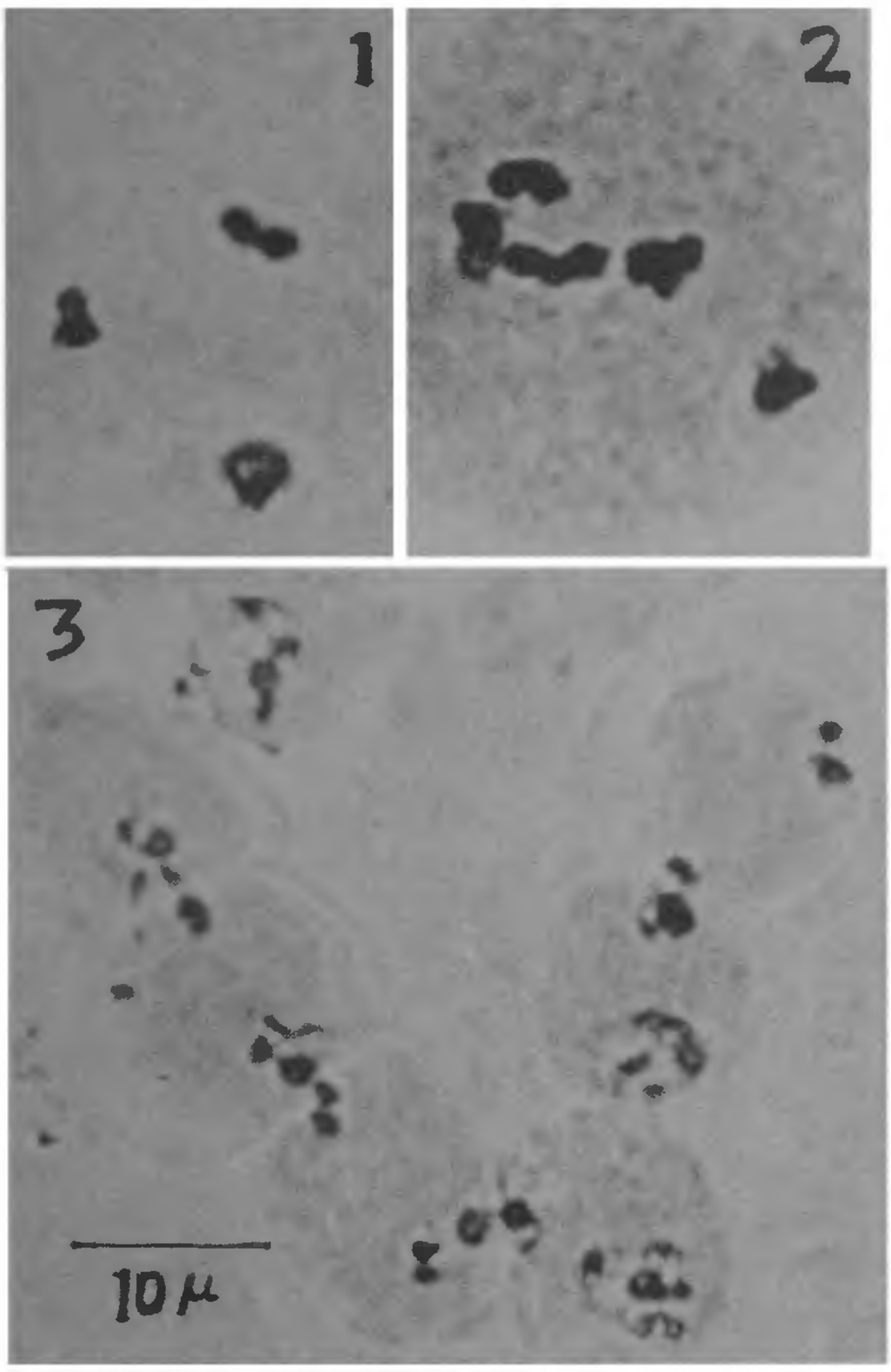
THE phenomenon of cytomixis which is characterized by transmigration of nuclear substances between adjacent cells through chromatin and cytoplasmic strands has been reported in many plant species[1], since it was first reported in *Oenothera gigas* and *O. biennis*[2]. In addition to meiotic cells, it has been reported to occur in meristematic tissues[3] and in the interference between somatic and meiotic cells[4]. Cytomixis has also been induced in meristematic cells of root-tips, vegetative-tips and tapetal cells by herbicide, trifluraline treatment in *Vicia faba*[5]. In the present study, cytomixis and other minor meiotic abnormalities were detected in the pollen mother cells of *Plantago ovata* Forsk, an annual herb belonging to the family *Plantagenaceae*. The *ovata* species is the only cultivated medicinally important among the ten *Plantago* species found in wild state in various parts of India.

Young spikes were fixed in Carnoy's solution. Meiosis and pollen stainability were studied following 2% iron-aceto-cormine staining. *P. ovata* is a diploid ($2n = 8$) with normal meiotic behaviour. However, due to unknown factors chromatin migration through prominant intercommunicating cytoplasmic strands and connections was noted in less than 3% PMCs of an anther, while the remaining ones displayed a normal behaviour. Cytomictic anomalies were not only confined to the first meiotic division but also noticed in second nuclear division. Cells at early prophase I, showed a greater frequency of cytomixis as compared with the later stages. In certain PMCs nuclear material appeared to be clumpy and sticky. Rarely PMCs were connected in a series of 3–5 or even 7 cells (figure 3) and a single cell was found to be connected to 3 or more cells. The amount of migrating chromatin varied greatly in different meiocytes, ranging from a portion of chromatin material to the entire genome complement of a nucleus. Empty pollen mother cells and those with double the normal amount of chromatin were observed indicating that the entire chromatin mass had moved to the recipient cell leaving only a small portion of it in the donor cell, that too inclined towards the cytoplasmic channel. However, the probability of inclusion of migrated chromosome into the nucleus of recipient cells and the degree of viability of donor cell are still unknown.

High pollen sterility (54.5%) and normal ovule fertility were recorded. Whether the increased pollen sterility was due to cytomictic phenomenon or due to other environmental factor is not clear.

The cytomixis resulted in cells having chromosome number deviating from the diploid number. PMCs with 3 (figure 1) and 5 (figure 2) bivalents were observed in different frequencies. Thus it appears that cytomixis is an important factor for causing variations in chromosome numbers in the meiocytes producing aneuploid gametes; which in turn may give rise to aneuploid and polyploid lines in subsequent generations.

The factors responsible for cytomixis are not yet clearly understood. Many non-genetic factors, including mechanical pressure applied during squashing[3] and even genetic manifestation[6] are suggested for



Figures 1–3. 1. Metaphase I showing only 3 II^s. **2.** Metaphase I showing 5 II^s. **3.** A group of seven cells connected due to cytomixis.

causing cytomixis. The phenomenon of cytomixis in this species may be due to genetic or physiological disturbances or both.

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OCCURRENCE AND SEVERITY OF A NEW COLLAR AND STEM ROT OF *CASSIA SERICEA* SW FROM INDIA

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CASSIA SERICEA Sw is one of the important herbs growing extensively in conspicuous colonies along railway lines, road sides and waste lands. Joshi and Mahadevappa reported that *C. sericea* grows fast suppressing the growth of the important noxious weed i.e. *Parthenium* sp. Further, they suggested that *C. sericea* could be grown whenever *Parthenium* sp poses a problem.

In the present work it was observed that 8–12% of *C. sericea* seedlings wilted around Dharwad during 1984 and 1985 kharif. Normally the wilting symptoms were noticed during the flowering period of the crop.

The affected plants showed yellowing, followed by wilting and drying, finally resulting in the death of the seedlings. Close observations on the infected plants revealed that white mycelial mat along with white to brown sclerotial bodies covering the collar region and the stem upto 3–6 inches. Repeated isolations from infected parts of the plant invariably yielded *Sclerotium* sp.

Pathogenicity of the fungus was established by inoculating the soil in which *C. sericea* seedlings were grown with fungus grown on corn meal sand medium (1:1 w/w). The pathogen was found to infect the germinating seeds resulting in premature death. Such seeds were covered with white mycelial mat. The pathogen caused post-emergence death of seedlings, manifesting in the form of brown discoloration of stem, at the ground level followed by wilting. Further, the white mycelial mat along with sclerotial bodies was observed on the root zone of the infected *C. sericea* seedlings.

The characteristic features of the fungus are mycelium superficial on the host, sclerotia chocolate brown in colour and ellipsoidal or subrotundum in shape. The size of sclerotial bodies varied from 0.5 to 1.5 mm. Based on these characters, the fungus was identified as *Sclerotium rolfsii* Sacc. This is the first report of *S. rolfsii* causing seed rot, seedling wilt on *C. sericea* from India.

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