This is the first report of the successful *in vitro* germination of *P. palmivora* and thus oospores may help in the perpetuation of this fungus in the gardens.

The authors are grateful to Mr. D. N. R. Reddy, Assistant Professor, and S. Yelshetty of Department of Entomology of this College, for their help in identification of the snail and photography.

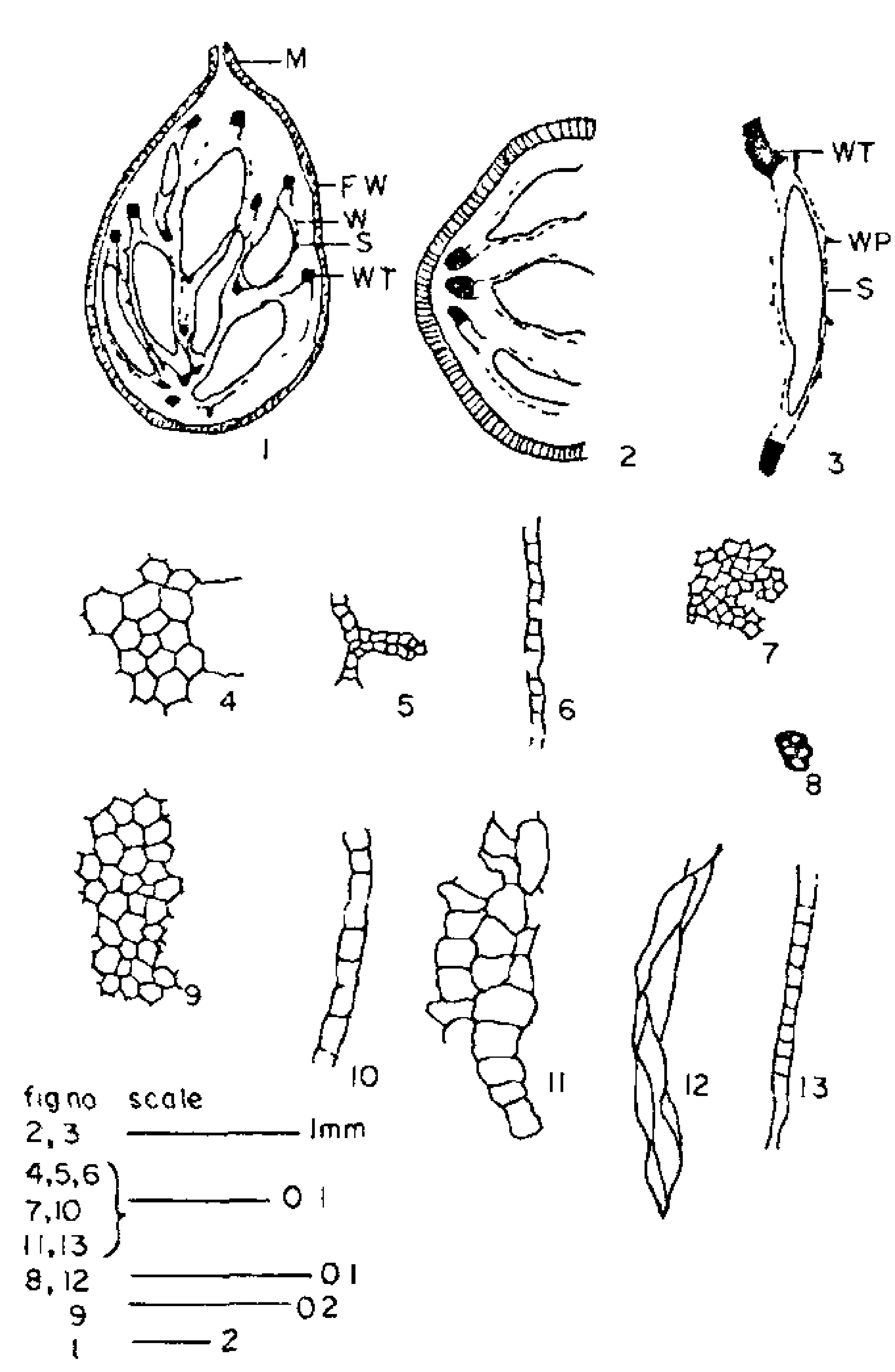
19 October 1983

1. Salvatore, M. A., Gray, F. A. and Hine, R. B., *Phytopathology*, 1973, **63**, 1083.
2. Brasier, C. M., *Trans. Brit. Mycol. Soc.*, 1969, **52**, 273.
3. Gregg, M., *Nature (London)*, 1957, **180**, 150.
4. Sastry, M. N. L., Ph.D. Thesis, *Univ. Agric. Sci. Bangalore*, 1982.
5. Shaw, D. S., *Phytopathology*, 1967, **57**, 454.

A FOSSIL CAPSULE WITH WINGED SEEDS FROM THE INTERTRAPPEAN SERIES OF INDIA

M. T. SHEIKH and D. K. KAPGATE
Department of Botany, Institute of Science, Nagpur 440 001, India.

In this note a petrified capsule with winged seeds is described for the first time from the Deccan Intertrappean beds of Mohgaonkalan, (Madhya Pradesh) India. The fruit is unilocular, measures 2.5 × 4.6 mm in size. It is ovoid in shape and slightly tapers at its apex showing an apical slit (M), probably a dehiscing zone of the fruit (figure 1). The pericarp is 70–90 μ thick and differentiated into epicarp, mesocarp and endocarp (figure 2). The epicarp shows single layered epidermis (figure 10) and 2–3 layered columnar parenchymatous hypodermis (figure 11). Few elements of xylem are seen in this region (figure 8). Mesocarp is fibrous and 4–5 celled thick (figure 12). Endocarp is unilayered and parenchymatous (figure 13). The fruit possesses seven well-preserved winged seeds (S) (figure 1). The wing (W) shows pointed ends (figure 3) with sclerenchymatous elements (WT) (figures 4 and 9) and spiny parenchymatous projections (WP) are seen on the margin of the wing (figure 5). The seed coat is unilayered and parenchymatous (figure 6). Internally the seeds are filled with parenchymatous



Figures 1–13: Longitudinally exposed specimen showing seven seeds (WT – Wing tip, S – Seed, W – Wing).

cells which can be referred as endosperm or kernel (figure 7). The embryo is not observed.

The fossil fruit has been compared with the fruits of Meliaceae, Lythraceae, Celastraceae, Bignoniaceae, Scrophulariaceae and Fouguieriaceae (1, 2). But the present specimen differs from other fruits in that they are multichambered and many seeded. However, the genus *Hippocratea* of family Celastraceae resembles in having 1–3 chambered, dehiscent fruits containing few seeds but also differs in size and nature of seeds of the fruit. As it does not come very close to any of the living and fossil forms, it is referred to as a new form genus *Wingospermocarpon mohgaonese* gen. etsp. nov, the generic name being after the winged nature of the seeds and specific name after the locality Mohgaonkalan.

15 March 1983, Revised 3 October 1983.

1. Cooke, C. I. E., *The flora of the Presidency of Bombay*, Vol. I & II, Botanical Survey of India, Calcutta, 1958.
2. Gamble, J. S., *Flora of the Presidency of Madras*, Vol. I & II, Botanical Survey of India, Calcutta, 1957.

EFFECT OF B-CHROMOSOMES ON A-CHROMOSOME CHIASMA DISTRIBUTION IN A SECTORIAL TETRAPLOID PEARL MILLET PLANT FROM A WEST AFRICAN CULTIVAR

A. LATHA KUMARI and K. JAYALAKSHMI
Department of Botany, Andhra University, Waltair 530003, India.

B-CHROMOSOMES are known to suppress the homoeologous chromosome pairing in hybrids and allopolyploids[1-5]. Even in autotetraploids they are known to suppress multivalent formation and encourage bivalent formation independent of chiasma frequency[6]. However, in pearl millet it was shown that B-chromosomes have a differential effect, that is, they encourage multivalent formation independent of chiasma frequency[7]. In the present investigation it was possible to study the effect of Bs on A-chromosome pairing pattern in a (sectorial) tetraploid spontaneously occurred in a cultivar from Mali, a different agroecological region. The earlier work was on the B-chromosomes present in a cultivar of Sudanese origin.

Seeds of pearl millet, *Pennisetum typhoides* (Burm.) S. & H from Mali (West Africa), supplied by ICRISAT, showed the occurrence of B-chromosomes[8]. The B carrying materials are being maintained for further cytogenetic investigations. In the selfed progeny plants with 1–4, B-chromosomes were observed and in one plant, a spikelet containing tetraploid pollen mother cells (p.m.c.'s) along with diploid cells was encountered. Data on A-chromosome associations were collected from p.m.c.'s at diakinesis, employing the usual cytological and staining techniques (fixation being in a mixture of 1:3 acetic acid: methanol and staining in 2% acetocarmine).

The plant contained mostly diploid p.m.c.s with 0 to 2Bs ($2n = 14+0$ to 2Bs). The tetraploid sector contained 2 Bs (in all 30 p.m.c.'s studied). The mean A-chromosome chiasma frequency per tetraploid p.m.c. was 18.67, with a mean number of 3.27 quadrivalents, 0.83 of trivalents, 4.07 bivalents and 4.37 of univalents (table 1). The mean A-chromosome chiasma frequency of 1 B-cells in diploid sector was 12.20 ± 0.11 and that of 2 B cells was 11.37 ± 0.24. The mean A-chiasma frequency of tetraploid cells with 2 Bs was less than double ($p < 0.01$) the number of chiasmata per diploid p.m.c. with 1 or 2 Bs in the diploid sector. In the present investigation, no p.m.c.'s without B-chromosomes were available. Therefore comparisons were made with OB tetraploids reported earlier[9,10]. (table 1). Since those tetraploids are in other varieties, they are genetically different. The differences in chiasma frequencies and chromosomal association frequencies, if any, among the three materials might be due to these varietal differences in addition to B-chromosome effects.

The table shows that though the mean A-

Table 1 *Comparison of means of A-chromosome chiasma frequency and chromosome association frequencies in tetraploid pearl millet, from different sources.*

Reference	Source	Origin	Bs	Mean A-chromosome chiasma frequency	Mean chromosome associations per p.m.c. Quadrivalents	Bivalents	Trivalents	Univalents	No. of p.m.c.'s studied
Present	Mali-Africa-1	Spontaneous	Present	18.67 ± 0.43	3.27 ±0.17	4.07 ±0.30	0.83 ±0.16	4.37 ±0.41	30
Narasinga Rao, 1978[7]	IP 1475	Colchicine induced	Absent	23.76 ±0.19	2.88 ±0.13	7.54 ±0.13	0.34 ±0.05	0.56 ±0.09	100
Koduru and Krishna Rao, 1978[10]	IP 482	Spontaneous	Absent	24.06	3.14	7.44	0.06	0.38	50