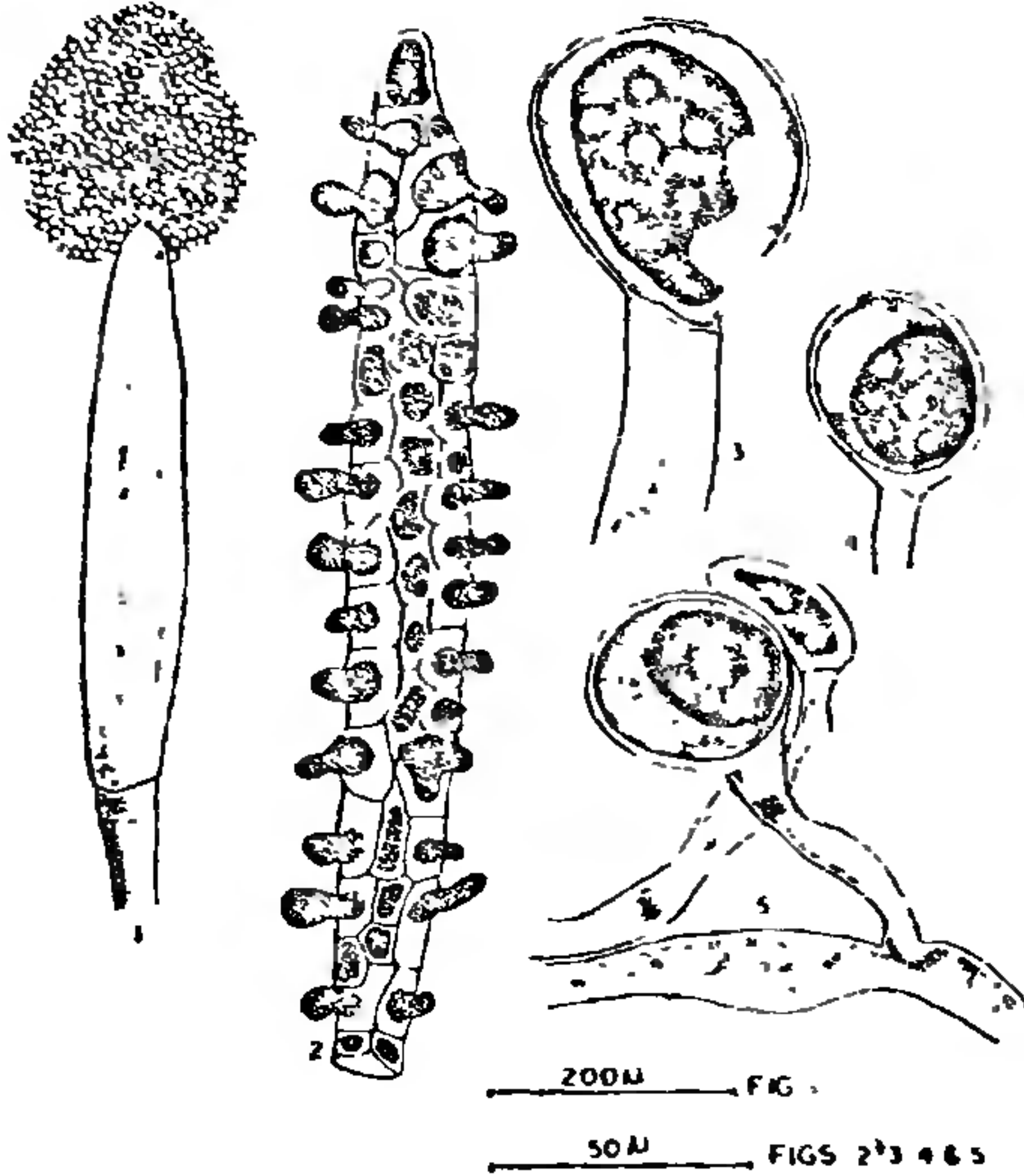


hypharum eformatis. Sporangii terminalibus dictyoid, eurenticulis et modo cymosis crescentibus, 167–655 μm longae et 11–33 μm latae. Aliquibus sporangii *Achlya* instar. Sporis 8–17 μm diam. Oogoniis globosis 25–42 μm diam. Oosporidis 1, guttulis oleosis excentricis 22–28 μm diam, coadunatis, tunica oogoniorum non-punctulata. Antheridiis rariis, dicliniis, solaris per oogoniis.



FIGS. 1–5. Fig. 1. Achlyoid sporangium with cluster of spores at the tip. Fig. 2. Dictyoid sporangium. Figs. 3–5. Oogonia.

Vegetative growth moderately dense on hemp seed halves. Hyphae measuring 19–86 μm near the base. Gemmae present in old culture, formed by the segmentation of the hyphae. Both Achlyoid and dictyoid type of sporangia present, former being rare while the latter ones abundant and are of true net type. Dictyoid type of sporangia are branched, all arising from the tips of hyphae and by cymose branching measuring 167–655 μm \times 11–33 μm . Spores 8–17 μm in diameter. Oogonia abundant, spherical, borne singly on lateral branches and measuring 25–42 μm in diameter, oogonial wall unpitted and smooth. Oospheres one in number, eccentric, 22–28 μm in diameter. Antheridia rarely present, diclinous, one per oogonium if present.

Isolated in Jan. 1976 from pond water (pH 8.5), collected from "Baba Ka Pokhara", situated on the side of Lucknow–Rae–Bareilly road. Slides of the type culture are deposited in Mycological collections, Botany Department, Lucknow University, Lucknow, India.

Although the present species has some characteristics that bring it closer to *D. pseudoachlyoides* Bencke¹, it differs from that in having sporangia of only true net type and oogonia with one diclinous antheridia which are rare.

The authors are thankful to Dr. T. W. Johnson, Duke University, North Carolina, for his suggestions regarding identification.

Department of Botany,
Lucknow University,

J. N. RAI.

J. K. MISRA.

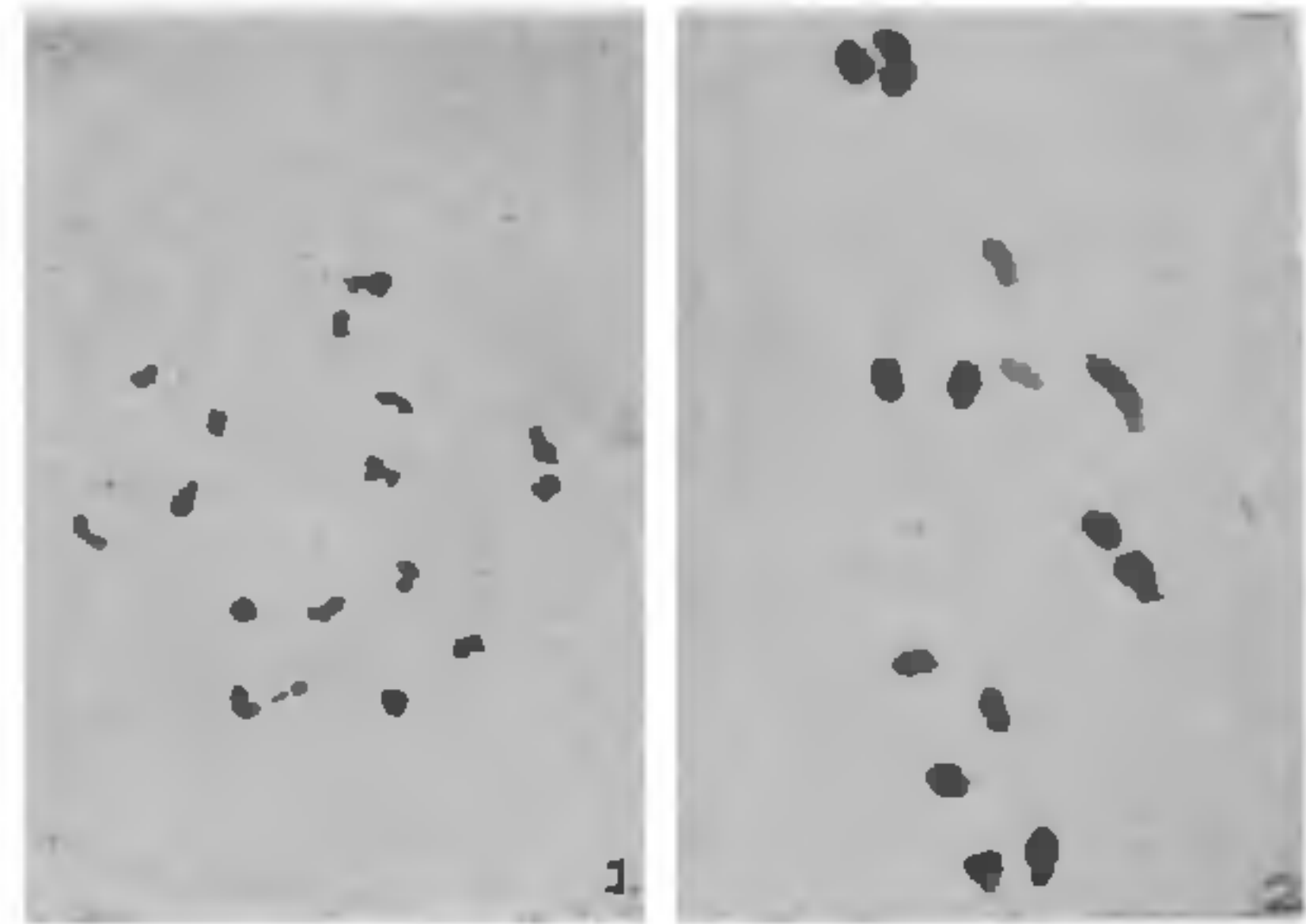
Lucknow 226 007, October 28, 1977.

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CYTOLOGY OF *ARECA MACROCALYX* BECC.

IN the genus *Areca*, *A. catechu* the betel nut palm is the only cultivated species. Till recently, the cytological information on the genus is confined to the reports of chromosome numbers, their morphology and meiotic analysis in *A. catechu* and *A. triandra*^{1–5}.

The Regional Station of Central Plantation Crops Research Institute at Vittal has a germplasm collection consisting of 6 species introduced from East Indies and Near-East countries and the cytology of a species introduced from New Guinea, namely *A. macrocalyx* Becc. is reported here.



FIGS. 1–2. Microsporogenesis in *A. macrocalyx*. Fig. 1. Diakinesis with 16 bivalents, \times 1,300. Fig. 2. Early metaphase-I with 3_{IV} + 10_{II}, \times 1,850.

The chromosome association at diakinesis as well as metaphase-I ranged from 1_{IV} + 13_{II} to 13_{II} + 6_I. An association of 16_{II} was observed in 54.3% of the pollen mother cells at diakinesis and 29.8% at metaphase-I. A maximum of four quadrivalents was observed in 2.2 and 7.0% of the pollen mother cells at diakinesis and metaphase-I respectively. Laggards were observed in 10.6% of the cells.

at anaphase-I and 49.3 of the cells at anaphase-II. Besides normal tetrads, monads (1.6%), diads (4.1%), triads (8.2%) and pentads (0.8%) were also observed. The pollen fertility was 86.5%.

While 16 bivalents were of the highest frequency both at diakinesis and metaphase-I, the maximum configuration was one hexavalent/PMC (Table I).

TABLE I

Chromosome associations and their frequencies at diakinesis and metaphase-I in *A. macrocalyx*

Chromosome Associations				Frequencies at	
VI	IV	II	I	Diaki- nesis	Meta- phase-I
1	..	13		5	3
	4	8		2	4
	3	10		2	3
	2	12		7	5
	1	14		17	9
		16		50	17
		15	2	6	8
		14	4	2	2
		13	6	1	6
				92	57

Average Association :

Diakinesis : $0.05_{VI} + 0.49_{IV} + 14.73_{II} + 0.28_{I}$.

Metaphase-I : $0.30_{VI} + 0.77_{IV} + 13.78_{II} + 1.06_{I}$.

The multivalents observed in the species are of chain type indicating terminal homology of the pairing chromosomes. Higher chromosome associations, ranging from trivalent to decavalent in *A. catechu* and upto quadrivalent in *A. triandra*, have been reported⁵. The chromosome associations in *A. macrocalyx* indicate the probability of autopolyploid origin with restricted multivalent pairing as in the case of *A. catechu* and *A. triandra*⁵.

CPCRI Regional Station,
Calicut 673 011,
November 2, 1977.

M. K. NAIR.
M. J. RATNAMBAL.

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POPILLIA SCHIZONYCHA ARROW—A POLLEN FEEDING BEETLE ON RICE IN KARNATAKA

THE beetles belonging to the family Scarabaeidae vary considerably in their size, colour and habits. Many feed on decomposing plant materials; some are serious pests of lawns while others feed on plant foliage, fruits and flowers. The members of the subfamily Rutelinae are called as shining Leaf Chaffers since the adults are very brightly coloured. One of the serious pests in this group is the Japanese beetle, *Popillia japonica* Newman.

Arrow¹ has given the description of another species, viz., *Popillia schizonycha* Arrow, with its habitat in Nilgiri Hills and Bangalore but its host plants are not mentioned. This species is commonly found feeding on rose petals (Mandya, Karnataka). The adults are about 12 mm in length and 6 mm broad. They are metallic green in colour, smooth and shining and moderately convex above; several white spots along the sides of the abdomen and two roundish white spots on the tip of the abdomen are also seen.

During flowering of the paddy crop these beetles were found resting on the foliage. Though no damage to the crop was noticed, close observation revealed that they feed on the pollen of the panicle. There is no earlier report of this species feeding on rice crop.

The author is grateful to the Director, Commonwealth Institute of Entomology, London, for identifying the species.

University of Agricultural Sciences,
Regional Research Station,
Mandya 571 405, Karnataka,
November 9, 1977.

P. S. RAI.

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EMS-INDUCED STERILE MUTANTS IN REDGRAM

IN self-pollinated crops the plant breeders have always been attempting to find out sterile strains in order to use them as a tool for the production of hybrid seeds. Ethyl methane sulphonate (EMS) is a powerful mutagenic agent and several investigators have observed sterile strains induced by it¹⁻⁴. The present investigation deals with the induction of male sterility in an early maturing var. Pusa Ageti of *Cajanus cajan* (L.) Millsp.

Two hundred seeds of redgram (*Cajanus cajan*) presoaked for each treatment for 14 hours in distilled water at room temperature were treated with aqueous