Comments: *P. medlicottianum* was earlier recorded from the Rajmahal hills[1] and Jabalpur series[2]. *Pterophyllum morrisianum*, *P. medlicottianum* and *P. princeps* were figured and described from the Rajmahal hills[1]. Further, *Pterophyllum morrisianum*, *P. carterianum*, *P. distans* and *P. kingianum* were recorded from the Gollapalli[3] and *P. footeanum* was reported from Vemavaram[4].

According to Bose[5] most of the Indian *Nilssonia* specimens are actually referable to *Pterophyllum* as they show laterally attached lamina and locally forked parallel veins.

Gleichenia nordenskioildii, *Taeniopteris spatulata*, *Ptilophyllum cutchensis*, *P. acutifolium*, *Elatocladus conferta*, *E. kingianus* and *Pagiophyllum marwarensis* etc., representing the chief elements, were earlier recorded from the Gangapur Formation[6,7]. *P. medlicottianum* thus constitutes a significant addition to the Gangapur Flora.

We are grateful to Prof. C. G. K. Ramanujam for guidance and critical suggestions in preparing this paper.

23 April 1986; Revised 21 June 1986

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CHROMOSOME NUMBER OF *COIX AQUATICA* ROXB

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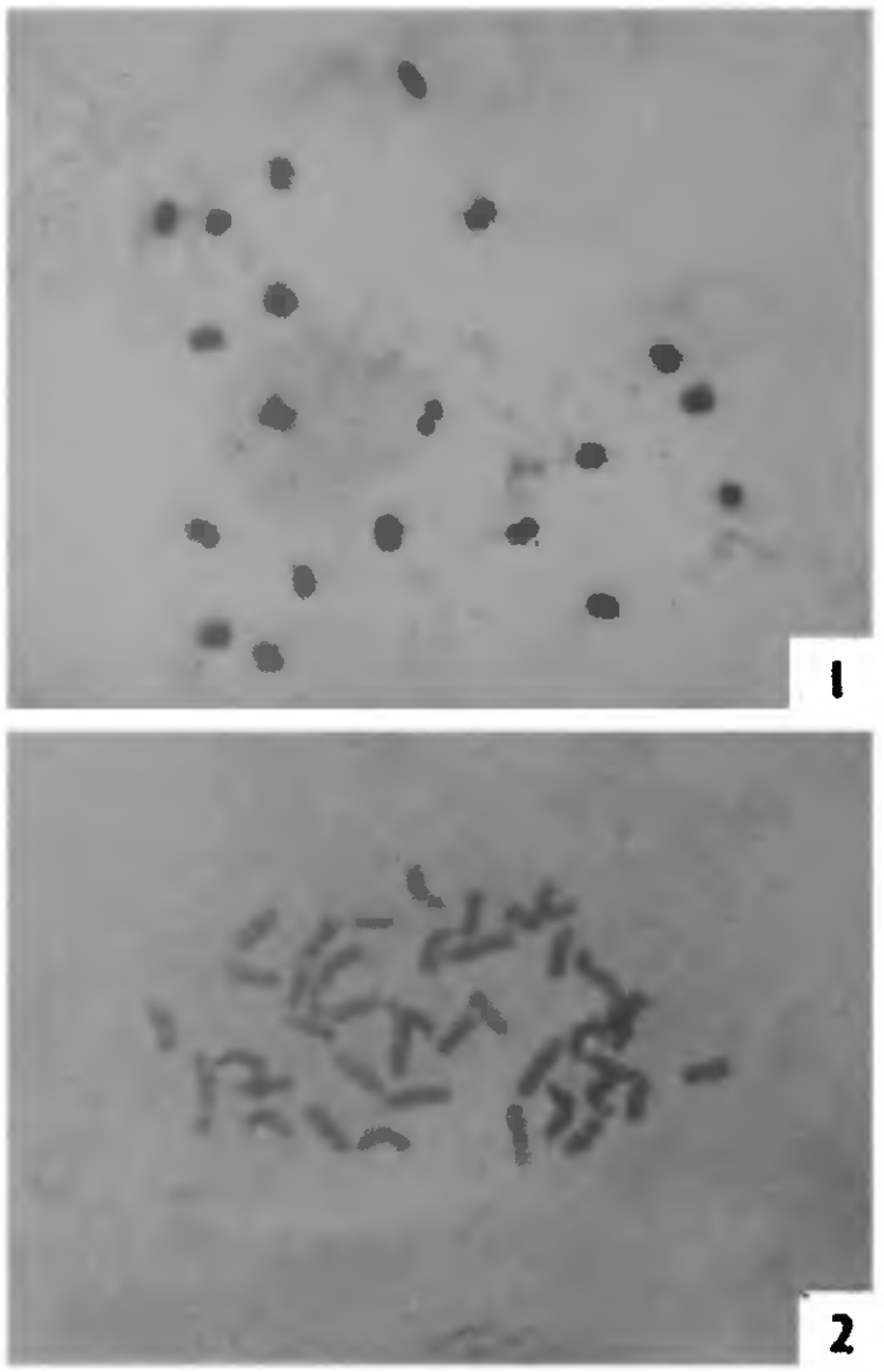
THE genus *Coix* Linn (tribe Maydeae; family Gramineae) is characterized by its fruit-case (involucre), which is formed from the hardened floral leaf or bract and the classification of this genus is based on the size, shape and texture of the involucre. Bor[1] describes four species from India. *C. aquatica*, a rather rare species, is distinguished by the presence of the involucre which is abruptly constricted at the neck into a beak and the upper surface of the leaves is densely covered with conspicous glands which bear bristle-like hairs. It is a floating or creeping perennial grass with somewhat succulent stems often growing gregariously. The chromosome number of this species has been previously reported[2–5] to be $2n = 10$ and $2n = 20$, while in the present study, it is found to be $n = 20$ and $2n = 40$.

Materials of *C. aquatica* were collected from a pond near Coimbatore and planted in the Botanic Garden of Kerala University. Meiosis was studied from pollen mother cells and mitosis from root tip cells. Root tips and flower buds were fixed in Carnoy's fluid and the standard aceto-carmine squash technique is used for chromosome preparations.

Meiosis was regular in most of the cells with 20 bivalents at metaphase I (figure 1) and only occa-



Figures 1 and 2. *Coix aquatica*. Meiosis. $n = 20$; 2. Mitosis. $2n = 40$ (× 1000).

sionally one quadrivalent was observed. Root tip cells showed 40 chromosomes ranging in length from 2.83 μ to 5.33 μ (figure 2). The karyotype consists of six pairs of M-type, 12 pairs of m-type and two pairs of sm-type of chromosomes. The karyotype asymmetry is found to be[6] 2A. The plant showed about 80% pollen fertility and good seed set and it is propagated by seeds as well as by suckers.

The basic number of *Coix* is $x = 5$ and it is interesting to note that most of the previous reports are tetraploids with $2n = 20$ chromosomes[7,8]. The somatic number $2n = 40$ recorded now for the first time in this species indicates that it is an octoploid. Regular meiosis with a high per cent of pollen fertility and seed set shows that it is a stabilized species.

Thanks are due to Dr C. A. Ninan for encouragement.

14 July 1986

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DISEASE REACTION OF CHICKPEA GRAFT-HYBRIDS TO *FUSARIUM OXYSPORUM* F SP *CICERI* RACE 1

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CHICKPEA wilt caused by *Fusarium oxysporum* f sp *ciceri* is a serious soil-borne fungal disease in many chickpea-producing countries. The pathogen multiplies in the vascular bundles, following successful invasion from the soil and blocks the water conducting tissue. Consequent to the combined effect of water deficit and phytotoxic substances produced by the fungus, a susceptible host cultivar shows typical drooping of shoot tips eventually leading to its death. However, there are genotypes that resist the growth and multiplication of the pathogen. Although the nature of the defense mechanism is not exactly known, genetic studies have revealed that two recessive genes impart resistance in cultivars WR 315 and CPS 1 while a dominant gene delays wilting in H 208[1]. Since, the cost-effective solution of problems caused by soil-borne disease is by breeding resistant cultivars, it is useful to understand the mechanism of resistance in view of its transfer to susceptible but otherwise high yielding cultivars. To that end an experiment was conducted in which resistant and susceptible genotypes were reciprocally grafted.

The grafting was done as follows. One week-old seedlings were cut to a 10 mm wedge 2 cm above the soil surface. Growing tips with a single developing terminal leaf were cut from one week-old plants. The epidermis and phloem region at the end of the scion was scraped with a razor blade to fit the wedge. Stock and scion were secured tightly with a cotton thread and covered with a polythene bag.

One week after the grafting the graft combinations were carefully transferred to 15 cm plastic pots containing wilt-infested soil. The wilt-infested soil was prepared by adding 15-day-old single spore cultures of *F. oxysporum* f sp *ciceri* race 1 on sand-chickpea meal to a (1 : 1) mixture of black soil and sand at the rate of 100 g of inoculum to 2 kg of soil mixture. Ten grafts were tested for each of the following graft combinations for their disease reaction

Root Stock	Scion
WR 315	H 208
CPS 1	H 208
H 208	WR 315
H 208	CPS 1

WR 315 and CPS 1 = wilt resistant
H 208 = wilt susceptible

All the attempted grafts were successful without any visible adverse effect on the development of root stock or the scion (figure 1). Therefore, this simple technique of grafting was adopted for studying the disease reaction of reciprocal grafts to