A. monophylla. It, therefore, appears that *A. ceylanica* might have derived from two species. *A. monophylla* and *A. guillaumini* by hybridization and subsequent polyploidization of the hybrid.

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COLCHICINE-INDUCED MONOECIOUS MUTANT IN MULBERRY

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THOUGH colchicine has been known as a polyploidizing agent, a number of cases have been reported in *Sorghum*[1–3], *flax*[4], *barley*[5], *cotton*[6], *Torenia fourneiri*[7], *Trigonella foenum-graecum*[8] and mulberry[9] which indicate that it can cause chimeral sector, somatic reduction, gene mutations and modifications of sex expression. The present investigation is the continuation of the earlier report[9] and deals with cytomorphological studies in colchicine-induced monoecious mutant in a popular variety of mulberry, *Morus alba* var. *Kanva-2*.

Table 1 *Comparative account of morphological characters of female and colchicine induced monoecious mutant*

Characters (cm)	Female	Mutant
Growth habit		
Height of the plant	165.20	221
Number of branches	3	5
Internodal distance	4.02	3.80
Sprouting (%)	82.00	81.60
Rooting (%)	79.00	78.00
Leaf		
Leaf size (cm^2)	176.35	182.75
Weight of 100 leaves (g)	325.00	405.00
Water content of the leaf (%)	66.25	72.76
Number of stomata per unit area	65.25	61.00
Stomatal size (L × W) (μ)	14.20 × 12.80	12.80 × 11.72
Leaf texture and colour	Smooth, Green	Smooth, Dark Green
Flower		
Male inflorescence size (L × W)	–	3.80 × 1.20
Female inflorescence size (L × W)	1.28 × 0.87	1.30 × 0.80
Number of flowers per male inflorescence	–	46
Number of flowers per female inflorescence	26	24
Pollen fertility (%)	–	91.63
Fruit		
Sorosis size (L × W)	2.20 × 1.1	2.25 × 1.1
Seed set (%)	82.00	81.07

Figures 1 and 2. Control and monoecious mutant of *Morus alba* var. *Kanva-2*. **1.** Twig of control showing female inflorescences. **2.** Twig of mutant showing male and female inflorescences.

Axillary buds of three-month-old saplings, treated with 0.4% aqueous colchicine (Loba, India) for 8 h for 3 consecutive days, yielded a branch bearing both male and female inflorescences. This branch was isolated and multiplied by cuttings for detailed studies. For mitotic studies root tips treated for 1 h with 0.002 M solution of 8-hydroxyquinoline at 15°C, washed with distilled water, fixed in 1:3 acetic alcohol for 24 h, hydrolysed in 1N HCl at 60°C for 15 min, stained in 2% aceto orcein for 24 h and squashed in 45% acetic acid. For meiotic studies male inflorescences were fixed in Carnoy's fluid and the anthers were smeared with 1% acetocarmine. Pollen fertility was also assessed in 1% acetocarmine. For stomatal studies abaxial epidermal layer was peeled off and mounted on a glass slide in a drop of water.

Comparative morphological data of monoecious mutant and original female plant are summarized in table 1. There is an apparent increase in plant height, number of branches, size, weight and water content of leaves, size of inflorescences and sorosis and reduction in internodal distances, number of stomata per unit area, stomatal size and number of flowers in female inflorescences in mutant over the control.The mutant plant produces 24% female and 76% male inflorescences (figure 2) while the control bears 100% female inflorescences (figure 1). However, sprouting, rooting and seed setting percentage are almost the same in both the taxa.

The somatic cells of the control as well as of the mutant contain $2n = 28$ chromosomes. The diploid nature of the mutant is further confirmed by the presence of 14 bivalents in most of the PMCs (80%) at metaphase I. In the other PMCs the different chromosomal configurations found were −14 II, 13 II + 2 I, 12 II + 1 IV, 12 II + 4 I, 11 II + 1 IV + 2 I and 11 II + 6 I. Pollen grains are full of starch grains and show 91.63% fertility.

Cytological studies revealed no variation in respect of chromosomal number which suggests that the change of sex from female to monoecious is genic rather than physiological.

The mutant is superior in several economic characters over the parent female variety in having good growth, more branches, shorter internodal distance and thick, smooth and dark green leaves with higher weight and moisture content. The mutant is being used directly for silkworm rearing and for evolving high yielding tropical varieties of better nutritional value.

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NEW HOST RECORDS OF FISH LOUSE, *ERGASILUS MALNADENSIS* (COPEPODA : CYCLOPOIDA)

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AMONG the copepods of importance in fisheries, the fish louse, *Ergasilus* spp. are the predominant parasites of reservoir fishes. So far, six species of *Ergasilus* have been recorded on Indian freshwater fishes[1–5], of which, only *Ergasilus seshacharensis* was recorded on two hosts[5], while the others were observed on only one host fish. Strong host specificity has been reported in *E. cerasteus*, *E. elongatus*, *E. felichthys*, *E. wareaglei* and *E. clupeidarum*[6]. But the host specificity of *Ergasilus* has been documented to be weak[7]. A new species of *E. malnadensis* was described from freshwater shark, *Wallago attu*[8]. Parasite incidence, intensity and level of infestation have also been reported[9]. The present communication deals with the new host records for this parasite.

Examination of monthly samples of fishes, collected from fish landing centres namely, Chinnakatte and Vanivalasapura of Vanivilasa Sagar reservoir and two major fish marketing centres at Hosadurga and Hiriyur, revealed the infestation of predatory fishes viz. *Channa punctatus*, *C. striatus*, *Mastocembalus armatus*, *Mystus seenghala*, *Notopterus notopterus* and *Ompok bimaculatus* by *Ergasilus malnadensis*. The freshwater shark, *Wallago attu* was also infested by the parasite and the intensity of infestation was severe when compared to that on the new fish hosts. This is the first record of *E. malnadensis* on these fishes. The site of infestation in all the species was gills except in *O. bimaculatus*. Based on the present host record, it may be opined that *E. malnadensis* is less host-specific. The weak host specificity may be due to the recent departure of ergasilids from the free-living habits as is evident from the absence of gross morphological modifications and their capacity to spend large part of life cycle in the free environment[7]. The low intensity of infestation of the parasite noticed on new host fishes indicates that these may not be the preferred hosts or the host-parasite relationship may be in the initial phase of establishment.

Further, it is interesting to note the infestation of *E. malnadensis* only on predatory fishes. Except for one report[4], the fish louse was recorded only on predatory freshwater fishes in India. Though carps and plankton/herbivorous fishes contributed significantly to the fish catch of Vanivilasa Sagar reservoir, these were seldom noticed to be infested by *E. malnadensis* during the present study.

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