As already stated, the present cultivar might have originated through interspecific hybridization. The presence of high number of bivalents is indicative of rather close genetic relationship between the two species involved in the origin of the cultivar. The absence of any ring trivalent, ring univalent and quinquevalent which are characteristic features of secondary and tertiary trisomics respectively points towards the primary nature of the trisomic located in the cultivar.

The primary trisomic studied in the present case could have arisen through fertilization involving pollen or egg with aneuploid chromosome number resulting from non-disjunction and/or non-congression of a bivalent as has been observed in *Datura* (Blakeslee[1,2]), *Antirrhinum* (Stubbe[7]), *Nicotiana sylvestris* (Goodspeed and Avery[4]) and jute (Nandi[6]).

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CYTOLOGICAL STUDIES IN THE SEX TYPES OF *MORUS ALBA* L (MORACEAE)

Morus alba L., a tree species naturalized in many parts of India[4] with good regeneration capacity, is a source of valuable timber of considerable utility chiefly in the sports industry, besides being the base for sericulture[8]. Plants are dioecious with occasional tendency in some plants to bear catkins of opposite sex[11]. The survey undertaken on the North-West Indian taxa, in this context, has revealed the existence of two sex types, monoecious and male with some female catkins on the same branch (to be referred as monoecious and predominantly male type) in addition to the normal perfectly dioecious trees (to be referred as male and female types). However, female trees with some male catkins could not be located. The trees belonging to the different sex types are found to retain the specific sex character year after year. Moreover, they grow almost scattered without showing any preference for any specific habitat.

FIGS. 1–3. Fig. 1. Somatic complement ($2n=28$) of the diploid. Fig. 2. Somatic complement ($2n=42$) of the triploid. Fig. 3. Metaphase I showing one large and 13 small bivalents All figs. × 2,700.

Mitotic studies made from leaf tips, separately on the different sex types, show that male, female, monoecious and predominantly male trees have the same chromosome number ($2n=28$) and perfectly identical karyotype (Fig. 1). In these, two chromosomes (BB) measuring about 1·7 μm, are much larger than the remaining 26 chromosomes having size range from 0·7 μm to 1·0 μm. All the 14 pairs of chromosomes, however, are metacentric. The present observations are in perfect agreement with the previous reports about the chromosome number[1,5,7,9,13,14]

and the karyotype[2], except for the difference that Devi Kundu and Archana Sharma[2] have not observed the large-sized pair of chromosomes.

Some female trees cultivated for its edible catkins are counted to have the chromosome number $2n=42$ (Fig. 2) which is a triploid complement with two very large-sized chromosomes (AA) measuring about 2·2 μm, three large-sized chromosomes (BB) measuring about 1·7 μm and the remaining 37 chromosomes ranging in size from 0·7 to 1·1 μm. Triploidy is already known to exist in the species[13]. Thus the triploids have five large-sized chromosomes of which three of the type B, represented twice in the diploid.

Meiotic studies could be performed on the male, monoecious and predominantly male trees. Fourteen bivalents are regularly constituted at diakinesis and metaphase I (Fig. 3). Of these, 13 bivalents are small-sized with one chiasma each, whereas one large bivalent mostly ring type with two chiasmata is present in all the three sex types.

The mitotic as well as meiotic studies made presently, record the existence of two large-sized chromosomes in the diploid complement of the species, irrespective of any sex type. It confirms the earlier reports about the presence of a large-sized pair of chromosomes in *Morus alba* and the allied species[6,7,10,13]. Tahara[13], Osawa[7] and Sinota[12] have referred these large–sized chromosomes as allosomes, alpha and beta, and suggested their role in sex determination in the dioecious taxa. The presence of five such large chromosomes in the triploid female complement of $2n = 42$ coupled with the absence of large chromosomes in certain diploid taxa[2] do not support such a contention. Furthermore, the comparison of the chiasma frequency and the morphology of chromosomes in the different sex types, suggst that the two large chromosomes are homomorphic and even homologous in nature. As such, there seems to be no indication that these chromosomes are concerned with sex determination. The large pair of chromosomes or a large bivalent, in dioecious taxa, should not necessarily be taken as sex chromosomes for such chromosomes have even been observed in the complement of monoecious species like *Punica granatum*[3]. Thus, it seems more reasonable to assume that sex in *Morus* is controlled by some physiological factor as suggested by Schaffner[11] or sex mechanism is genic rather than chromosomal.

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A NEW SPECIES OF *CEROSTEGIA* DE LOTTO (HOMOPTERA: COCCIDAE) FROM AJMER (INDIA)

Genus *Cerostegia* De Lotto

De Lotto[1] proposed the genus *Cerostegia* for three species of the genus *Ceroplastes* Gray (*C. floridensis* Comstock, *C. japonicus* Green and *C. rufus* De Lotto) and designated *C. rufus* De Lotto as its type-species. The generic characters proposed by him for the genus *Cerostegia* apply well on the Indian species under study which is new to science. At present it is known to include 4 species which are differentiated by the following key characters:

Key to the species of *Cerostegia* De Lotto, based on females

1. Legs normal; stigmatic spines conical, arranged in linear row on margin..... 2
—Legs much reduced; stigmatic spines dome-shaped or hemispherical, arranged irregularly on margin (De Lotto[1], Fig. 3)..... *C. rufa* (De Lotto)
2. Margin of thorax between stigmatic clefts with an interrupted row of stigmatic spines..... 3
—Margin of thorax between stigmatic clefts with an uninterrupted row of stigmatic spines (De Lotto[1], Fig. 2)..... *C. japonica* (Green)
3. Caudal process reaching just beyond the abdominal apex; anal cleft small, less than twice the length of anal opercula; orifice of dendritic ducts with 2–4 loculi; tubular ducts with inner ductule short, one-third the length of outer ductule (De Lotto[1], Fig. 1)..... *C. floridensis* (Comstock)