The constancy of the chromosome number \( n = 14 \) in most of the taxa of this complex is significant from an evolutionary point of view. *C. braunii* exhibits minor karyotypic variations which may be associated with phenotypic changes. All the forms of *C. braunii* complex show minor phenotypic differences between one another and it appears that in *C. braunii*, the structural alterations of chromosomes are associated with the evolution of phenotypic variations. Karyotypic asymmetry within the complex is natural but the majority of taxa in this complex has a dominance of metacentric and submetacentric chromosomes. It is evident from the present study that *C. braunii* f. *novi-mexicana* is a close representative of *C. braunii* complex due to the similarity in karyotypic organization and chromosome number.

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NULLISOMIC-TRISOMIC IN COIX GIGANTEA (POACEAE)

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While aneuploids on the negative and positive sides of the disomic constitutions have been reported in many plants, higher polysomics occur with extreme rarity. Addition and/or subtraction of different chromosomes at a time, in a diploid constitution is still a rare phenomenon, tetrasomics (2\(n + 2 + 1\)) and monotrisomic (2\(n - 1 + 1\)) being the only two-in-one aneuploids reported so far. A new double-aneuploid constitution, nullisomic-trisomic (2\(n - 2 + 1\)), in *Coix gigantea* is reported here.

*C. gigantea* Koen. ex. Roxb. (2\(n = 20\)) belongs to the tribe Maydeae of family Poaceae. Seeds of this species were collected from the Purandar Fort (Maharashtra) and a small plant population is maintained at the botanical garden of this University. Typical meiotic nondisjunction of a bivalent and irregularities in the chromosomal segregation due to limited desynapsis led to the formation of aneuploid gametes. The plants being of the open-pollinated type, it resulted in a range of aneuploid individuals, through spontaneous cross-fertilizations. A telotrisomic plant (2\(n = 20 + i\)) obtained from among the progeny was selfed by completely enclosing it in a muslin cloth bag with the onset of flowering. The selfed progeny consisting of about 60 plants was cytologically-screened by fixing immature male racemes of every individual plant...
separately in acetic-alcohol (1:3) and squashing
young anthers in aceto-carmine (1%). Among these
one nullisomic-trisomic plant was detected that was
deficient in a complete bivalent, but at the same
time carried another extra chromosome in the
complement \((2n = 19, \ 2n - 2 + 1)\). Most PMCs
showed eight bivalents and a trivalent at diakinesis
(figure 1) although configurations showing nine
bivalents and a univalent (figure 2) were not
uncommon. At metaphase, the trivalent regularly
orientated at the equator along with eight bivalents
(figure 3). The overall meiosis was regular giving
deficient but viable pollen. Usually aneuploidy
adversely affects the health, survival and fertility of
individuals\(^1\) but nullisomic-trisomic of \(C. \ gigantea\)
is exceptional in being healthy and fertile, as are also
its nullisomic \((2n - 2, 2n = 18)\)\(^{10}\) and monotrisomic
\((2n - 1 + 1, 2n = 20)\)\(^{5}\) constitutions.
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**PRODUCTION OF SHEATH OF CALOTHRIX MARCHICA LEMM IN PHOTO AND CHEMOHETEROTROPIC CULTURE**

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In continuation of our investigations on the hetero-
tropic growth of various cyanobacteria\(^{1-3}\), the
present work was undertaken to study the effect of
various organic compounds on the growth of a
filamentous cyanobacterium Calothrix marchica
Lemm var. *Intermedia* Rao under various growth
conditions. The conditions for cultivating the organ-
ism and the procedure to determine the growth were
described earlier\(^3\). Allen and Arnon's nitrogen-free
medium\(^4\) was used. The growth experiments were
conducted in light in the presence of \(10^{-5}\) M DCMU
(the concentration at which autotrophic growth of
\(C. \ marchica\) was completely inhibited) and in dark
with various organic carbon compounds (viz. suc-
rose, glucose, fructose, mannose and xylose) as a