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# **Czech J. Genet. Plant Breed.**

**Kumar A., Khedasana  
R., Rao S.R.:**

**Cytogenetical  
investigations in  
colchicine-induced  
tetraploids of  
*Cyamopsis*  
*tetragonoloba* L.**

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143-154

Successful induction of autotetraploidy has been achieved in five accessions of *Cyamopsis tetragonoloba* L. The diploid seedlings of these accessions were treated with different concentrations of aqueous colchicine using the cotton-swab method for 10– 18 hours within 2– 3 days. The highest percentage of success was recorded when the seedlings were treated with 0.2% colchicine for 10 h within two days. The synthesized plants showed remarkable enhancement in several morphological and floral

characters making them more robust and better plants from the food and feed aspect. Cytologically, quadrivalent frequency ranging from 3.18 to 5.45 and univalent frequency ranging from 0.08 to 1.10 were characteristic of the colchicine-induced tetraploids. Among all the associations, bivalent chromosome associations were observed more frequently (2.95 to 6.04). The anaphase I and II disjunction of bivalents/chromosomes was leading more or less regularly and equally to the formation of at least few seeds from some of the synthesized plants. Significant enhancement in morphological traits as revealed in colchicine-induced tetraploid plants having a better food and feed value and normal meiotic behaviour of synthesized autotetraploids leading to a good seed set may ultimately result in the genetic improvement of *Cyamopsis tetragonoloba*.

**Keywords:**

cluster bean; genetic improvement; induced polyploidy; meiotic behaviour; quadrivalents

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