AJER ASIAN JOURNAL OF EMERGING RESEARCH
eISSN:2664-5211 | pISSN:2663-4988

Research Highlight

HOW TO COUNT CHROMOSOMES IN THREE *Cicer* SPECIES?

S.M. Hesamzadeh Hejazi
Research Institute of Forests and Rangelands, Tehran, Iran

Key words:
Cicer chromosome numbers satellites chromosomes karyotypes botrytis grey mold ascochyta blight metacentric chromosome pairs

Genus *Cicer* belongs to the legume family which is known as Fabaceae. Its native distribution is across the Middle East and Asia. Genus *Cicer* includes many herbaceous and shrubby species but chickpea, scientifically known as *Cicer arietinum* is the only domesticated and cultivated specie of this genus[1].

Genus *Cicer* is categorized into four different sections i.e. monocicer, chamaecicer, polycicer and achanthocicer. This classification was purely done on the basis of morphological specifications and life cycle traits[2].

The section, monocicer consists of annual species such as *C. bijugum* which is essential for breeders while polycicer section comprised of perennial species such as; *C. oxyodon* and *C. anatolicum. The C. bijugum* plays a significant role in the crossing program because of having desirable characters like resistance to ascochyta blight, pod borer and botrytis grey mold.

Chromosome number in *Cicer* species can be generalized as 2n = 2x = 16, even though changeable numbers both for chickpea (2n = 2x = 14, 16, 24, 32, 33) as well as other wild *Cicer* species (2n = 14, 16, 24) have been reported but could not be verified by other workers[3,4].

Therefore, scientists decided to conduct a study to in order to verify the chromosome number of the different species of genus *Cicer.* For this purpose, three species *Cicer bijugum, Cicer oxyodon* and *Cicer anatolicum* were selected for karyotype analysis. All species were diploid with 2n = 2x = 16 chromosomes and karyotypes of all species consist of metacentric chromosome pairs[5].

Conclusively, considering the analysis of the chromosome numbers of the different species of *Cicer*, scientists found that the diploid number of chromosomes for the genus *Cicer* is 16. It has observed that some species of *Cicer* have two pairs of satellites chromosomes while only one pair of satellites chromosome was noticed in *C. oxyodon*[6].

eISSN:2664-5211 | pISSN:2663-4988

REFERENCES

1. Van Oss, R., S. Abbo, R. Eshed, A. Sherman and C.J. Coyne *et al.,* 2015. Genetic relationship in *Cicer* sp. expose evidence for geneflow between the cultigen and its wild progenitor. *PloS One, Vol. 10, No. 10.*
2. Van der Maesen, L.J.G., 1972. Cicer L.: A Monograph of the Genus, with an Special Reference to the Chickpea (*Cicer arietinum* L.), its Ecology and Cultivation. In: Mededlingen Landbouwhogeschool, Veenmam, H. and Q. Zonen (Eds.). WHO Geschool, Wageningen, *pp: 1-127.*
3. Sohoo, M.S., D.S. Athwalet and S. Chandra, 1970. Colchicine induced polyploidy in chickpeas (*Cicer arietinum* L.). *Theoret. Applied Genet., 40: 163-168*
4. Mercy, T., S.K. Kakar and J.B. Chowdhry, 1974. Cytological studies in three species of the genus *Cicer. Cytologia, 39: 383-390*
5. Iyengar, N.K., 1939. Cytological investigations on the genus *Cicer*. *Ann. Bot., 3: 271-305*
6. Hejazi, S.M.H., 2011. Karyological study on three *Cicer* L. species (Fabaceae) in Iran. *Asian J. Cell Biol., 6: 97-104*