



Cytogenetic Investigations and Karyological Relationships of Eight *Medicago* species (Fabaceae)

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Abstract: A karyological study was conducted of eight taxa of the genus *Medicago* L. namely *M. sativa*, *M. glutinosa*, *M. x varia* and *M. polychroa*, *M. hemicycle*, *M. falcate*, *M. suffruticosa* and *M. hybrid* of *Medicago sativa-falcata* complex. Cytological tools used as an attempt to found new traits which may be significant in classifying the taxa of the complex. The measured chromosomal parameters were, short arm, long arm, and total length of chromosomes, mean relative length percentage and mean centromeric index percentage of each chromosome and total genome length. Satellite chromosomes and chromosome type were detected and the chromosomal formula for each taxon was provided. The basic chromosome numbers in the eight studied taxa varied between; $x=8$, for diploid ($2n=16$); *M. hemicycle*, *M. falcate*, *M. suffruticosa* and *M. hybrid* and tetraploid ($2n=32$); *M. sativa*, *M. glutinosa*, *M. x varia* and *M. polychroa*. Karyotype characters were significant to identify the studied taxa. Detailed karyotype analysis allows to group the different species and to postulate relationships among them. The present study supports putting the taxa *M. sativa*, *M. suffruticosa* and *M. hybrid* in one group and treating *M. glutinosa*, *M. x varia*, *M. polychroa*, *M. hemicycle* and *M. falcate* as a distinct species rather than considering them as subspecies of *M. sativa*.

Keywords: Alfalfa, Cytotaxonomy, Fabaceae, Falcago, Falcatae, Karyotype, *Medicago*, *Medicago sativa-falcata* complex, Polyploidy
