

KARYOTYPE ANALYSIS AND SYSTEMATIC RELATIONSHIP IN THE IRANIAN *ASTRAGALUS* L. (FABACEAE)

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*The karyotype characteristics of 24 taxa of Iranian Astragalus genus from different geographic origins were studied and their relation with a systematic classification of studied taxa was discussed. Chromosome numbers based on $x = 8$ were found in all of the taxa. Diploid ($2n = 2x = 16$) and tetraploid ($2n = 4x = 36$) chromosome number, were recorded in 12 taxa representing nine species, and in 12 taxa representing six species, respectively. The degree of karyotype asymmetric is set by values of A_1 , AR, CI, TF%, SA%, and LA%. So, the most value of A_1 , AR, LA% and the most value of CI, TF%, SA% were shown in *A. stevianus* (accession 20105) and *A. cyclophyllon* (accession 18375), respectively. The size of chromosomes in the studied taxa, ranging between 1.930 μ in *A. cyclophyllon* (accession 18375) and 4.095 μ in *A. bombycinus* (accession 20114). By using Ward cluster analysis, the relation of studied taxa based on karyotype characteristic was shown. In this plot, all of the taxa were located in four groups on karyotype characteristics similarity. Then this grouping was compared with their traditional systematic classification.*

Key words: *Astragalus*, Chromosome, Iran, karyotype, Systematics.

АНАЛІЗ КАРІОТИПУ І СИСТЕМАТИЧНИХ ВЗАЄМОВІДНОСИН ІРАНЬСЬКОГО *ASTRAGALUS* L. (FABACEAE)

Було досліджено каріотипні характеристики 24 таксонів іранського роду *Astragalus* різного географічного походження та обговорено їхні взаємовідносини з систематичною класифікацією раніше вивчених таксонів. Число хромосом на основі $x = 8$ знаходили у всіх таксонів. Диплоїдне ($2n = 2x = 16$) і тетраплоїдне ($2n = 4x = 36$) число хромосом було зафіксовано у 12 таксонів, що представляли дев'ять видів, і у 12 таксонів, що представляли шість видів, відповідно. Ступінь каріотипної асиметрії встановлювали за значеннями A_1 , AR, CI, TF%, SA% та LA%. Найвищі значення A_1 , AR, LA% і найвищі значення CI, TF%, SA% було виявлено для

A. stevianus (ізолят 20105) та *A. cyclophyllon* (ізолят 18375), відповідно. Розмір хромосом у досліджуваних таксонів був у діапазоні від 1,930 мк у *A. cyclophyllon* (ізолят 18375) до 4,095 мк у *A. bombycinus* (ізолят 20114). Кластерний аналіз Варда було застосовано для виявлення взаємовідносин досліджуваних таксонів на основі каріотипних характеристик. На цій діаграмі всі таксони було поділено на чотири групи на основі подібності каріотипних характеристик. Потім це групування порівняли з традиційною систематичною класифікацією.

Ключові слова: *Astragalus*, хромосома, Іран, каріотип, систематика.

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