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Analysis of C-banding and karyotype of Chromosome of two *Galega* species

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Key words : *Galega orientalis* , *Galega officinalis* , Chromosome , C-banding , Karyotype

Introduction *Galega orientalis* Lam and *Galega officinalis* Linn are perennial legume forages ,that have gained a place of Practaculture Science importance as new legume pasture species with potential in the former Soviet Union , Northern Europe and Canada . These species have high crop yield , high crude protein content , strong ecological adaptability , and sustainable persistence in pasture . There have been numerous studies on their biology value and cultivation technique , but research about cell biology is lacking . In order to promote the breeding and heredity development of *Galega* , we have conducted investigation on its karyotype and C-banding . This information will have value in understanding the genetic nature of these forage plants .

Materials and methods Karyotype analysis of chromosome was conducted by squash method . The C-banding analysis was followed by the HBSG (HCl-Ba(OH)₂-SSC-Giemsa) method . The description of karyotype and C-banding were performed according to LI Mao-xue(1996) .

Results and analysis

karyotype analysis The results showed that the number of chromosome of *Galega orientalis* Lam . was $2n=2x=16=16m$. According to Stebbins classification , it belonged to 1A type . Its AI(karyotype asymmetry index) was 2.55 . The number of chromosome of . was $2n=2x=16=12m+4s$, its karyotype was 1A type . Its AI(karyotype asymmetry index) was 1.77 . Two species have the same chromosome number . The karyotype formula is different ,but they both have nearly median chromosome .

C-banding research The band formula of *Galega orientalis* Lam .was $2n=16=10C+2I^++2CI^++2$.The band formula of *Galega officinalis* Linn .was $2n=16=8C+2I^++2I_++2CI^++2CT_+$.

Discussion Karyotype and C-banding can be used for the analysis of genome and chromosome . *Galega orientalis* Lam .and *Galega officinalis* Linn .were both symmetrical karyotype , which indicated that they were ancient and primal plants . Sometimes arm ratio is inaccurate due to unclear centromere of chromosome related to the degree of pressure . Therefore , it is difficult to obtain accurate results relying solely on the length of chromosome and the arm ratio characteristics to do the matching analysis . But for most plants , the result of C-bangding is relatively steady and valued , so we analyse karyotype combined with the results of C-banding , in order to obtain more accurate result of karyotype analysis .

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