

**HETEROCHROMATIN POLYMORPHISM IN SELECTED SPECIES
OF *HORDEUM L.***

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The aim of the conducted karyological study was to determine the number and location of heterochromatin in two wild growing genomes of barley, namely *Hordeum bulbosum L.* and *Hordeum murinum L.* While both studied genomes are polyploids with the number of somatic chromosomes: $2n=28$, *H. bulbosum L.* is autopolyploid, thus it possesses two different genomes: one of barley (marked as A) and the other one of an unknown parent (B) (Morison, 1959).

The analysis of preparations coloured with the C-banding method showed that in both studied species of all chromosomes, chromosome 4 contains the most heterochromatin. The least heterochromatin is contained by chromosome 1; only centromeric heterochromatin is present there. The longest chromosome in the genomes of the studied species is chromosome 2; in this case heterochromatin is centromeric and intercalary, especially on the long arm. Chromosomes 3 and 5 (pairs) are similar with respect to the amount of heterochromatin. However, there are noticeable differences in its location in a given chromosome. In the case of *H. bulbosum L.*, heterochromatin is centromeric and intercalary – one band on each arm. In case of *H. murinum*, centromeric heterochromatin was observed only on the short arm, both in chromosomes 3 and 5. Chromosomes 6 and 7 in the *H. bulbosum* genome are of SAT type; they have similar amounts of heterochromatin located centromerically and intercalary, at the secondary contraction and on the satellite. As mentioned earlier, there are two different genomes. In the barley genome (A), chromosomes 6 and 7 are of SAT type, as in the case of *H. bulbosum*. Although chromosome 6 contains a slightly higher amount of heterochromatin, its distribution within both types is similar. In the second genome (*H. murinum*), chromosome 7 is of SAT type and the heterochromatin distribution is similar to that for genome A. Chromosome 6 is the smallest one in the genome, it does not possess a satellite, and the heterochromatin in this chromosome is centromeric and intercalary. In this chromosome, intercalary heterochromatin is only present on the long arm.

Having compared these two genomes, one should point out the fact that heterochromatin within chromosomes is mainly centromeric and intercalary. The total amount of heterochromatin in the *H. murinum* genome is higher than that in the *H. bulbosum* genome. In both genomes, there are both constant bands and variable bands present.

The difference in the amount of heterochromatin indicates the presence of polymorphism between the genomes of *Hordeum L.* Such changes play an important role in the evolutionary process.