

DETECTION AND QUANTITATION OF WIS2-1A RETROTRANSPOSON IN HULLED WHEAT BY REAL TIME PCR

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Real-time PCR assay, based on SYBRGreen I dye and LightCycler (Roche) fluorimeter, was used to detect WIS2-1A transposon copy number in diploids (*Triticum monococcum*, and *T. urartu*, traditionally indicated as AA), tetraploid (*T. dicoccum*, AABB) and hexaploid (*T. spelta*, AABBDD). WIS2-1A was the first retrotransposon to be found in wheat, as an insertion of 8 Kb into a High-Molecular-Weight (HMW) storage protein gene in *T. aestivum*; it is an ancient DNA element that probably was already present in the diploid ancestor of the *Triticeae*.

Significant differences were observed in the WIS2-1A copy number both among species and accessions within species. The lowest copy number was detected in diploids, with a slightly higher values in tetraploids and hexaploids. Numerous studies had indicated a strong relation between the retrotransposon copy number and genome size. However, recent results questioned this finding, attributing to the A genome a higher transposable elements content than B and D genomes.

Present results confirm previous studies suggesting that the A ancestral genome may have undergone differential genome expansion prior to speciation, and that the retrotransposon copy number is not linearly related to the ploidy level in wheat species.