Homoeologous relationships of *Haynaldia villosa* chromosomes with those of *Triticum aestivum* as revealed by RFLP analysis

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Homoeologous relationships between Haynaldia villosa chromosomes and bread wheat (Triticum aestivum) were studied in two sets of wheat-H. villosa addition lines and five substitution lines by restriction fragment length polymorphism (RFLP) analysis. H. villosa chromosomes 1V to 7V are homoeologous with group 1 to 7 chromosomes of wheat. In wheat-H. villosa substitution lines, the wheat chromosomes 3D, 4D, 5D, and 6A were replaced by homoeologous H. villosa chromosomes. The addition lines for chromosome 4V and 5V from three different accessions were analyzed by C-banding, and characterized by RFLP markers. Group 4 and 5 translocations were detected on chromosomes 4V#1 and 5V#1 (produced by Sears, unpublished), and 4V#3 and 5V#3 (produced by Lukaszewski, personal communication). The translocation breakpoints were located between Xpsr1051 and Xpsr115 on 4VL and between Xpsr370 and *Xcdo1312* on 5VL. The similarities of the breakpoints within the Triticeae indicate that the specific chromosome regions of the homoeologous groups 4 and 5 are 'hot spots' for chromosome breaks. The group-5 homoeologous loci, *Xpsr115*, *Xpsr580*, and *Xcdo484*, also were detected on the chromosome 4V#2 (produced by Liu et al., 1988) with a similar breakpoint between Xpsr1051 and Xpsr115. However, no reciprocal translocation was detected on the chromosome 5V#2. Possible reasons for difference of 4/5 translocation in this species are discussed.