Primary Studies on Cotton Telomere

LING Jian[1], PENG Ren-hai[1,2], WANG Kun-bo[1], WANG Chun-ying[1], SONG Guo-li[1], LIU Fang[1], LI Shao-hui[1], ZHANG Xiang-di[1], WANG Yu-hong[1]

(*Cotton Research Institute, Chinese Academy of Agricultural Sciences; Key Laboratory of Cotton Genetic Improvement, Ministry of Agriculture, Anyang, Henan* 455000, *China*)

The *Arabidopsis* -type telomere sequence was amplified and cloned using the primers designed from the fragment which contained the telomere sequence in an Arabidopsis BAC. In situ hybridizations with cotton metaphase chromosomes, using the telomere as probe, it indicated that the signals were located at all chromosome ends of 7 diploid and 2 tetraploid cotton species. To identify the signals of FISH, the genome DNA of Xinhai 7, digested by Bal31 kinetics, was used in this study. The result of Bal31 digestion indicated that the hybridization signals represent the outermost DNA sequence of each cotton chromosomes. So, we first proved that the telomeric repeats of cotton cross-hybridizes with that of *Arabidopsis*. The result of terminal restriction fragment (TRF) to cotton species showed that the telomere length of cultivated cotton was close to 20 kb and was larger than that of wild cottons which was ranging from 6 kb to 20 kb.

Key words: cotton; fluorescent in situ hybridization; telomere