Allelic variation distribution of vernalization and photoperiod genes in wheat from Central Asian countries

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Abstract: **【Objective】** Identification of vernalization and photoperiod genes in wheat from Central Asian countries provides theoretical foundation for introduction and reasonable selection of parental materials. **【Method】** 65 wheat germplasm were detected by molecular markers of vernalization genes *Vrn-A1*, *Vrn-B1*, *Vrn-D1* and *Vrn-B3*, and photoperiod gene *Ppd-A1*, *Ppd-B1* and *Ppd-D1*. **【Result】** The results showed that distribution frequencies of *Vrn-D1, Vrn-A1*, *Vrn-B1*, *Vrn-B3b* and *vrn-A1/vrn-B1/vrn-D1/vrn-B3* were 12.31%, 6.15%, 44.62%, 1.54% and 46.2%, respectively. Four polymorphisms were identified at Ppd-D1 locus, forming 10 haplotypes (*Ppd-D1_Hapl_I-Ppd-D1_Hapl_X*). Among them, the haplotype *Ppd-D1_Hapl-I* was dominant, with the distribution frequency of 56.9%. At *Ppd-B1* site, 55 wheat germplasm were detected for the photoperiod sensitive *Ppd-B1b* and 10 wheat germplasm did not have PCR amplification bands. All germplasm at *Ppd-A1* site were photoperiod sensitive *Ppd-A1b.* **【Conclusion】** The vernalization and photoperiod gene types and their distribution of wheat from Central Asian countries were clarified to promote the effective use of foreign resources in wheat breeding in China.