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## Identification of Korean Wheat Cultivars Using Multiplex STS-SSR Markers

Ri Choi<sup>1</sup>, Jin-Hee Yu<sup>1</sup>, Su-Min Hong<sup>1</sup>, Chul Soo Park<sup>1\*</sup>

<sup>1</sup>Department of Crop Science and Biotechnology, Jeonbuk National University, Jeonju, 54896, Korea

### [Introduction]

The objective of this study was to develop agarose gel based multiplex-PCR assay using sequence-tagged site (STS) markers and simple sequence repeat (SSR) markers that can discriminate Korean wheat cultivars.

### [Materials and Methods]

Fifty Korean wheat cultivars, Arijinheuk, Ariheuk, and Chinese colored wheat were provided by the NICS, RDA (Wanju, Korea). A total of 13 molecular makers, STS markers, *Ppo-A1*, *Ppo-B1*, *Vrn-D1*, *Rht-B1*, *Glu-A3*, *Glu-B3*, *TaCwi-A1b*, *Lr34*, *Glu-1*, *Wx-B1* and *Pina-D1* and SSR markers, KWSM003 and TaSE96 were used in this study.

### [Results and Discussion]

Forty-nine Korean wheat cultivars were primarily classified by seed coat colors into red (36) and white (13) groups. Red wheat cultivars were further distinguished by three multiplex-PCRs using molecular markers for *Ppo-A1/Vrn-D1a/Rht-B1b*, *Glu-A3ac/TaCwi-A1b/Lr34* and *Glu-A1ac/Glu-B1b/KWSM003/TaSE96*. White wheat cultivars were further distinguished by two multiplex PCRs using molecular markers for *Ppo-A1/Vrn-D1a/Pina-D1a* and *Ppo-B1/Glu-B3h*. Multiplex PCR assay using molecular markers for *Glu-A1b/Glu-D1d/Wx-B1* was developed to discriminate four Korean wheat cultivars used as government certificated seeds, Baekgang, Hwanggeumal, Keumkang and Saekeumkang. Multiplex PCR assay using molecular markers for *Glu-B3h* and *Pin-D1a* was used for colored wheat cultivars, Arijinheuk, Ariheuk, and Chinese colored wheat. These multiplex-PCR assays developed in this study would provide useful molecular tools for distinguishing Korean wheat cultivars and developing wheat seed management systems as well as guaranteeing wheat seeds in Korea.

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\*Corresponding author: E-mail, pcs89@jbnu.ac.kr Tel. +82-63-270-2533 Fax. +82-63-270-2640