

Suppression subtractive hybridization technique in wheat for the identification of disease resistance differentially expressed genes

ABSTRACT

A resistant variety with high yielding potential is key for increasing crop production to fulfill the food requirement of the ever increasing world populations. Consequently, the aim of plant breeders is to develop high yielding varieties or cultivars that are resistant or tolerant to specific diseases or insects. For developing a resistant variety, it is enormously indispensable to incorporate or introgress the specific resistant genes of that particular disease into the recipient. Suppression subtractive hybridization (SSH) is a powerful technique for the identification of disease specific differentially expressed genes that are expressed in a resistant or susceptible variety. This paper presents a brief review on the SSH technique with examples focusing on the identification of the wheat disease specific differentially expressed genes and their defense mechanisms against fungal pathogens in global wheat cultivars. This review is helpful for wheat researchers for the updated information on the SSH technique for the identification of differentially expressed genes in the global wheat cultivars and varieties. Eventually, the identified genes could be used to develop the disease resistance variety through marker-assisted backcrossing programme or conventional breeding.

Keyword: Differentially expressed genes; Expressed sequence tags (ESTs); Resistance variety; Suppression subtractive hybridization (SSH); *Triticum aestivum*