

Isolation of salinity tolerant genes from the mangrove plant, *Bruguiera cylindrica* by using suppression subtractive hybridization (SSH) and bacterial functional screening

Abstract

In this study, we have identified and isolated 126 salinity tolerant cDNAs from the root of a mangrove plant, *Bruguiera cylindrica* (L.) Blume by using suppression subtractive hybridization (SSH) and bacterial functional screening. Sequencing of 51 subtracted cDNA clones that were differentially expressed in the root of *B. cylindrica* exposed to 20 parts per thousand (ppt) NaCl water revealed 10 tentative unique genes (TUGs) with putative functions in protein synthesis, storage and destination, metabolism, intracellular trafficking and other functions; and 9 unknown proteins. Meanwhile, the 75 cDNA sequences of *B. cylindrica* that conferred salinity tolerance to *Escherichia coli* consisted of 29 TUGs with putative functions in transportation, metabolism and other functions; and 33 with unknown functions. Both approaches yielded 42 unique sequences that have not been reported elsewhere to be stress related and might provide further understanding of adaptations of this plant to salinity stress.

Keyword: Mangrove, Bacterial functional screening, *Bruguiera cylindrica*, Salinity tolerance, Sequence analysis, Suppression subtractive hybridization (SSH)