The Chinese University of Hong Kong
Non-confidential Abstract of Technology Disclosure

Title:

Application of a Novel Class of Seed Maturation Protein Genes and their Product to Enhance Tolerance toward Salinity and Drought Stresses in Plants

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Inventor(s):

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Patent Status:

- US Patent Pending
- Chinese Patent Pending
- HK Standard Patent Pending

Non-confidential abstract:

Salinity and drought stresses posed a severe problem to agriculture worldwide. Both stresses will lead to physiological drought and cause damage to plant cells, resulting in retarded plant growth and consequently a reduction in crop yield. We characterized a novel seed maturation protein gene. Its gene product is unrelated to the late-embryogenesis assoicated (LEA) proteins and contains conserved motif of a co-chaperone. The gene expression is induced in the seeds that have entered their maturation stage. The high level of gene expression in dry mature seeds decreases during imbibition. In vegetative tissues such as leaves, its gene expression is induced by NaCl treatment. Expression of this gene in transgenic Arabidopsis thaliana and rice can improve salinity and drought tolerance. Therefore, this novel class of seed maturation protein gene and their gene products can be used to improve salt and drought tolerance in plants, cell cultures, and cell lines.

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