

과제 일련번호: 21

Identification and expression analyses of three genes encoding putative acid phosphatases from rice

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We isolated the 3 different acid phosphate genes (OsAP1-3) from rice (*Oryza sativa*). The encoded polypeptides are 60% identical to other plants and show high degree of amino acid sequence similarity with acid phosphatase of *Arabidopsis thaliana* and tomato. There are signal peptide in OsAP2 and OsAP3 polypeptides. OsAP2 is 824bp long and contains an open reading frame encoding a 274 amino acid polypeptide, whereas OsAP3 is 968bp long and encodes a 322 amino acid polypeptide. The two clones are 13% similar in their nucleotide sequence within the coding region. The two polypeptides are 13% identical in their amino acid sequence. The RNA blot analysis showed that expression of OsAPs are various in response to phosphate deficiency. In particular expression of OsAP2 and OsAP3 were up-regulated in phosphate deficiency condition. OsAP3 was tightly regulated by phosphate concentration. We showed none of the other types of nutritional starvation (N-, K- and Fe-starvation) induced OsAP3 RNA accumulation. However, OsAP3 was responsive to salt stress. We are generating transgenic rice and *Arabidopsis* plants overexpressing OsAP genes.

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