OsEDR1 for characterizing biological function.

1-38. Etiology of Rice Seedling Disease in Water-Seeded Rice.

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Rice seedling disease is one of major problems in water-seeded rice. This disease is known to be caused by several pathogen such as *Pythium*, *Achlya*, and *Fusarium* species. However, seedling disease of rice in water-seeded rice in Korea is not extensively studied. *Pythium* species have been isolated from Seosan, Yeoju, Icheon areas using *Pythium* selective media and their pathogenicity was investigated. All of the *Pythium* isolates showed strong pathogencity causing seedling emergence reduction in water-seeded rice. Seedling emergence was reduced to 0~9% at 10 days after inoculation of 23 *Pythium* isolates compared to 60% of noninoculated control in a growth chamber. However, *Fusarium* species did not cause seedling emergence reduction in water-seeded rice. In contrast, when no water added into water agar or soil, the pathogen caused seedling rot two weeks after planting. These results indicate that *Pythium* species is a cause of seedling disease in water-seeded cultivation areas in Korea.

1-39. Isolation and Characterization of Pathogen inducible Leucine Zipper containing Gene from rice (*Oryza sativa* L. cv. Dongjin)

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A full length cDNA, *OsLEUZIP*, encoding leucine zipper containing protein from rice EST of rice (*Oryza sativa* L. cv. Dongjin) treated *Xanthomonas oryzae* pv. *oryzae* 10331. OsLEUZIP contains 1,227 bp nucleotides and encodes a protein of 408 amino acid residues with predicted molecular weight of 47,229 Da. The deduced amino acid sequence of OsLEUZIP has consensus sequence of leucine zipper from PROSITE (PDOC00029), **L**-X(6)-**L**-X(6)-**L**-X(6)-**L**. *OsLEUZIP* gene were preferentially induced in rice during incompatible interaction with *Xanthomonas oryzae* pv. *oryzae* 10331 and *Pyracuraria grisea* KJ-301. Expression of *OsLEUZIP* gene was also induced by treatment of abiotics such as ethephon and ABA. Our data represented in this study suggesting that *OsLEUZIP* gene may play an important role in the rice defense-related. Further studies of this gene, overexpression in rice, yeast-two hybrid assay, electrophoretic mobility shift assay and northern blot analyses of transgenic plant, would be useful to elucidate the role of the *OsLEUZIP* gene in defense responses of rice.