

Generation of transgenic rice expressing cyclotide precursor *Oldenlandia affinis* kalata B1 protein

ABSTRACT

Golden apple snail (*Pomacea canaliculata*) is a devastating pest on rice that causes heavy economic losses in South East Asia. In this study, we transformed mature seed-derived rice callus with plasmid containing *Oldenlandia affinis* kalata B1 (Oak1) gene encoding precursor's protein for potent molluscicidal agent of cyclotidekalata B1 targeting the golden apple snails. A total of 11 independent T₀ transformants were recovered and 7 were positive Oak1 transformants according to genomic PCR analysis. The Oak1 mRNA transcript was successfully detected on all the tested T₀ transformants using real-time PCR. Further immunoprecipitation experiment using specific Oak1 antibodies confirmed the presence of Oak1 protein expression in the transformants. We report, for the first time, the generation of transgenic rice plants expressing Oak1 as a potential crop protection strategy against the golden apple snail pest.

Keyword: Cyclotidekalata B1; Golden apple snail; Oak1; *Oryza sativa* ssp. Indica