

Characterization of novel type I ribosome-inactivating proteins isolated from oil palm (*Elaeis guineensis*) inoculated with *Ganoderma boninense*, the causal agent of basal stem rot

ABSTRACT

Type I RIPs have not been identified in oil palm. EgRIP-1a and EgRIP-1b transcripts were partially isolated from roots and basal stems of oil palm seedlings with high similarity to type I RIPs. Expression levels were altered during plant-pathogen interaction and their proteins were 28–30 kD with an estimated pI value of 10.0. Depurination of yeast 26S rRNA by EgRIP proteins demonstrated specific ribosome-inactivating activity. EgRIP proteins showed inhibition on *G. boninense* mycelial growth with 44.1% at 5 DAI. It was concluded that the novel EgRIPs are type I and demonstrated to have antifungal effect against *G. boninense*.

Keyword: Cation-exchange column; *N*-glycosidase activity; *Saccharomyces cerevisiae*; rRNA depurination; Fungal inhibition