ISSN: 2088-9771

Identification of Pheromone Binding Protein Gene of Yellow Rice Stem Borer *Scirpophaga incertulas* (Walker) (Lepidoptera: Crambidae)

[A]Jazirotul Fitriyati, [A]Rika Raffiudin and [B]I Made Samudra
[A]Bogor Agricultural University, Bogor, 16680, Indonesia.
[B]Indonesian Centre for Agricultural Biotechnology and Genetic Resources Research and Development (BB Balitbiogen), Bogor, Indonesia

The yellow rice stem borers (YRSB) moth, *Scirpophaga incertulas* (Walker) (Lepidoptera: Crambidae), is known as the most major rice stem borer in tropical Asia. Pesticides are not effective to control the population of these insects due to almost entire larvae phase and pupae are in the rice stem. Hence, other control technique is needed such as based on the mating behaviour. Pheromone binding protein (PBP) in male *S. incertulas* antennae plays a role in the recognition of sex pheromone produced by the female, therefore influenced in their mating behavior. The aim of this study was to identify PBP gene of *S. incertulas*. Touchdown PCR and touchdown-nested PCR were the main techniques conducted to identify genomic of PBP gene from *S. incertulas* and revealed 700 and 600 bp amplicons, respectively. Those amplicons strongly expected as PBP gene. Sequence analysis of *S. incertulas* from touchdown-nested amplicon identified 575 bp which was consisted of 169 bp of exon 3 and 406 bp of intron 2. This study revealed putative amino acid sequences of exon 3 from *S. incertulas* has one conserved cysteine while other Lepidopterans PBP have three conserved cysteine. In phylogenetic analysis, the putative amino acid sequences obtained, showed a phylogenetic signal i.e. by clustering with PBPs from other Crambidae moths. The result of this study is important as a basic data for PBP expression analysis in female or male *S. incertulas* as the initial step to develope new insect biocontrol.

Keywords: *moth, sex pheromone, mating behavior, touchdown-nested PCR, conserved cysteine*