Characterization and Induction of Two Cytochrome P450 Genes, *CYP6AE28* and *CYP6AE30*, in *Cnaphalocrocis medinalis*: Possible Involvement in Metabolism of Rice Allelochemicals

Xiaoli Liu[a], Jun Chen[b], and Zhifan Yang[a,*]

[a] College of Life Sciences, Hubei University, Wuhan 430062, China.
E-mail: sailyangzhf@yahoo.com.cn
[b] College of Chemical Engineering and Technology,
Wuhan University of Science and Technology, Wuhan 430081, China

* Author for correspondence and reprint requests

Z. Naturforsch. **65 c**, 719–725 (2010); received July 20/September 1, 2010

Two cDNAs specific for P450 genes, *CYP6AE28* and *CYP6AE30*, have been isolated from the rice leaf folder *Cnaphalocrocis medinalis* Guenée (Lepidoptera: Pyralidae). Both cDNA-predicted proteins have 504 amino acid residues in length, but with molecular masses of 60177 Dalton for CYP6AE28 and 60020 Dalton for CYP6AE30, and theoretical pI values of 8.49 for CYP6AE28 and 8.56 for CYP6AE30, respectively. Both putative proteins contain the conserved structural and functional domains characteristic of all CYP6 members. CYP6AE28 and CYP6AE30 show 52% amino acid identity to each other; both of them have 49–56% identities with CYP6AE1, Cyp6ae12, and CYP6AE14. Phylogenetic analysis showed that the two P450s are grouped in the lineage containing some of the CYP6AE members, CYP6B P450s and CYP321A1. The transcripts of CYP6AE28 and CYP6AE30 were found to be induced in response to TKM-6, a rice variety with high resistance to *C. medinalis*. The results suggest that the two P450s may play important roles in adaptation to the host plant rice. This is the first report of P450 genes cloned in *C. medinalis*.

Key words: *Cnaphalocrocis medinalis* Guenée (Lepidoptera: Pyralidae), CYP6AE28 and CYP6AE30, Host Rice Resistance