Mayura Veerana 2014: Analysis of the *doublesex* and *vitellogenin* Genes in Rice Moth, *Corcyra cephalonica* Stainton. Master of Science (Genetics), Major Field: Genetics, Department of Genetics. Thesis Advisor: Associate Professor Lertluk Ngernsiri, Ph.D. 161 pages.

Rice moth, *Corcyra cephalonica* Stainton, is one of the devastating stored insect pests. The *doublesex (Ccedsx)* and *vitellogenin (CceVg)* genes of *C. cephalonica* were investigated. Three *doublesex* (*dsx*) mRNAs, two from female (*CcedsxF1* and *CcedsxF2*) and one (*CcedsxM*) from male, were identified. The *CcedsxF1* and *CcedsxF2* contained the complete open reading frame (ORF) of 801 and 741 bp length, respectively. While the *CcedsxM* was the 831 bp partial ORF sequence. The nucleotide sequences of these *dsx* mRNAs were identical except the *CcedsxM* had no the nucleotide at the position 744-1018. The difference between *CcedsxF1* and *CcedsxF2* is the present of 15 bp sequence containing a stop codon in the *CcedsxF2*. The expression pattern of *Ccedsx* was very low in eggs and increased gradually to maximum at adult females and males. The *vitellogenin* gene of *C. cephalonica* was 6,721 bp length including a 60 bp 5'UTR, 5,382 bp six exons, 1238 bp five introns and 41 bp 3'UTR. The 5,382 bp open reading frame (ORF) encodes a predicted protein of 1,793 amino acids residues with 16 amino acid signal peptide and four conserved domains. CceVg contained three polyserine tracts, two located at the N-terminus and the other at the C- terminal, which has not been reported in Lepidopteran insect Vgs. The *CceVg* expression pattern was first detected in very low level at the early larval stage but disappeared in later stage of larvae and resumed in female at the early pupal stage. Interestingly, at adult stage, the highest expression was detected in females while the low expression level was detected in males. Injections of *CceVg* double strand RNA into early emerged females caused severe abnormal ovaries.

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