CHAPTER V

CONCLUSIONS

1. Four haplotypes of *Dra* I-digested lrRNA of *A. cerana* in Thailand were found. Haplotypes A and D were only found in north, northeast and central samples whereas haplotypes B and C were restrictively found in peninsular sample, Samui Island and Phuket Island.

2. The honey bee (*A. cerana*) in Thailand can be differentiated into two matriarchal lineages including the northern latitude *A. cerana* (north, northeast and central samples) and the southern latitude *A. cerana* (peninsular Thailand. Samui Island and Phuket Island).

3. Monomeric AcMRJP1 (50 kDa, pI = 5.2 – 5.7), oligomeric AcMRJP1 (300 kDa), AcMRJP2 (55 kDa, pI = 7.0 – 8.2) and dimeric AcMRJP3 (80 kDa in denatured and 115 kDa in native forms, pI = 7.4 – 8.4) were purified from RJ of *A. cerana* using Q-Sepharose followed by Sephadex G-200 column chromatographies.

4. All AcMRJPs were glycoproteins. The quantitative ratio of AcMRJP1 : AcMRJP2 : AcMEJP3 was 7.2 : 2.7 : 1. AcMRJP3 was the least stable protein compared to AcMRJP1 and AcMRJP3. Severe degradation of AcMRJP3 could be partially inhibited by PMSF.

5. Complete ORFs of AcMRJP1 and AcMRJP3 were identified from the hypopharyngeal cDNA library and RT-PCR. They were 1299 bp and 1824 bp encoding for 433, and 608 amino acids, respectively

6. Semi-quantitative PCR based on competition between the target and its genomic DNA was successfully developed. The quantitative ratio of AcMRJP1 : AcMRJP2 : AcMEJP3 transcript was 3.3 : 1.6 : 1.

7. Expression of AcMRJP1, AcMRJP2 and AcMRJP3 were found in hypopharyngeal glands of nurse bees and forager bees but not in newly emerged

bees. The expression levels of these genes in nurse bees were 1.8, 2.5 and 2.0 times greater than those of forager bees.