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WANLAYA UTHAISANG : PREPARATION OF DNA PROBE FOR THE ANALYSIS OF GENETIC VARIATION IN *Apis cerana*. THESIS ADVISOR : ASSO. PROF. SIRIPORN SITTIPRANEED, Ph.D., THESIS CO-ADVISOR : ASSIST. PROF. PATCHARA VERAKALASA, Ph.D. 87 pp. ISBN 974-631-049-6

The Asian hive bee or Eastern honey bee, *Apis cerana*, is native to Thailand and many countries in Asia. There are geographic variations in morphology and correlations among populations of *A. cerana* and these variations have been used as criteria for dividing *A. cerana* into several subspecies. However, it is still uncertain how many distinct populations or subspecies of *A. cerana* exist in Asia and how these populations are related to one another. In this research, the technique called Restriction Fragment Length Polymorphism (RFLP) analysis is used to detect sequence polymorphisms in chromosomal DNA of *A. cerana* collected from different areas in Thailand. DNA probes, containing repetitive sequences, are prepared by cloning *Eco*RI fragments of honey bee DNA into the *Eco*RI site of the pUC18 plasmid. The honey bee DNA used was from chromosomal DNA of Central region and total DNA of Samui Island honey bees. Fifty out of one thousand transformants of each cloning experiment were tested for the presence of repetitive DNA elements by dot blot hybridization using the same honey bee DNA as the probe. The recombinant plasmids containing repetitive sequences as shown by strong hybridization signals, were selected and used as hybridization probes. The DNA samples were digested with several restriction enzymes: *Eco*RI, *Hae*III, *Bgl*II, *Alu*I, *Xba*I and *Hind*III. Southern blot analyses of *Hae*III digested chromosomal DNA from *A. cerana* collected from 5 areas of Thailand showed 6 types of polymorphic banding pattern on hybridization to a DNA fragment prepared from clone #99.