

## **Abstract**

**The purpose of the present study intends to conduct a general survey for investigating the species and density of vector ticks existed in Taiwan and offshore Kinmen island. Various techniques including field survey, laboratory breeding, and polymerase chain reaction (PCR) are used for species identification and analysis of field-collected ticks in Taiwan. Results indicate that hard ticks of *Rhipicephalus sanguineus* and *Ixodes granulatus* are recognized as the most common vector ticks of offshore Kinmen islands and Taiwan. The infestation of ticks on the trapped rodents demonstrates an average overall infestation rate of 54.9% in the Taiwan areas and seasonal variation of prevalence was also observed. In general, the larval ticks are prevalent during the seasons from June to November and the highest density of infestation was observed on September with an average density of 2.52 per host. In addition, the highest density of infestation of nymphal and adult ticks was also observed on July and May with an average density of 4.3 per host and 0.78 per host, respectively. Moreover, phylogenetic analysis based on the similarity of 16S mitochondrial DNA of ticks indicates that genetic divergence do exist between the same tick species collected from different loci of the Taiwan and Kinmen areas. Further investigations focused on the genetic divergence among those ticks collected from different geographical areas in Taiwan would help to illustrate the phylogenetic relationship of vector ticks in Taiwan.**

**Keywords : Tick ; Molecular typing ; Phylogeny ; Taiwan**