

The Special ARN Student Seminar in Humanosphere Science

**Title : Behavioral responses associated with viral infection in yellow crazy ant,
*Anoplolepis gracilipes***

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Related RISH mission : Mission 5 (Quality of the Future Humanosphere)

Abstract :

Yellow crazy ant (*Anoplolepis gracilipes*), one of the world's worst invasive ants, has exerted numerous negative impacts on the local community and ecosystem stability. However, little effort was directed to biological control of the invasive ants, not to mention application of pathogens as biocontrol agents. Virus-based management can be an effective biocontrol approach against the invasive species as pathogens are generally spread rapidly through inter- and intra-colony interactions, and can serve as an alternative to the broad-spectrum chemical pesticides as it has been considered safer in term of non-target effect and reduced pesticide residue. Hence, the first step to develop a sustainable management scheme on the invasive ants using viral pathogens, I 1) screened the presence of the ant virus in Penang using viral specific RT-PCR; 2) analyzed the correlation between infection status of the virus and aggression behavior among sites; and 3) monitored the behavioral responses of the ant species challenged by viral infection through and laboratory manipulation. Moreover, a field test was conducted to evaluate the efficiency of the candidate viral agent in field suppression of the invasive ants. Food preference and population density were determined. In preliminary results, I found that infection status is highly associated with the performance of aggression behavior and food preferences. All experimental data generated from this study represent a fundamental element for the future development of a practical application module for each invasive ant species using corresponding viruses.

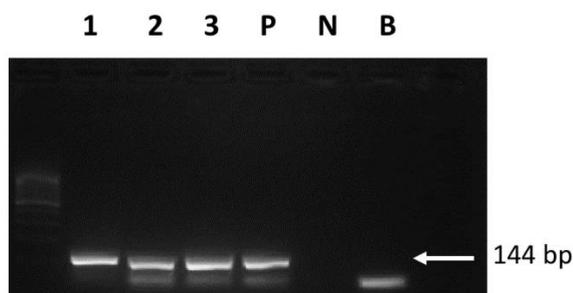


Fig. 1 Virus detection using specific RT-PCR. 1-3: yellow crazy ant colonies collected in Malaysia; P: positive control; N: negative control; B: blank.