

## ABSTRACT

Comparative At-Nest Behavioural Repertoires of the Independent-Founding Social Wasps *Mischocyttarus alfkeni* and *Polistes lanio* (Hymenoptera: Polistinae).

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The structure of the nests, though similar to that of many other paper wasps, including *P. lanio*, showed one main difference in the position of the petiole. This is mostly centric in *M. alfkeni* while *P. lanio*'s is always excentric. The nests of the former also have a smaller surface area.

Sample coverage of 0.96 in both *M. alfkeni* and *P. lanio* resulted in 50 behaviour patterns for the former and 49 for the latter. Analysis of the behavioural repertoires showed a small amount of variation between the species. There were more acts performed by the larger sized *P. lanio* than *M. alfkeni*. However, the smaller *M. alfkeni* was more active, having a rate of 0.66 acts/wasphour as opposed to *P. lanio*'s 0.25 acts/wasphour.

The class of behaviour patterns singled out for closer study was the self-grooming sequence. There was also great similarity between the two species. The method used here was direct observation of the wasps at their nests. Written records, voice recordings and visual tape recordings were made of frequencies of the behaviours. The structure of abandoned nests of *M. alfkeni* was analyzed in the laboratory. The colony composition of *M. alfkeni* was observed, and self-grooming behaviour of both wasps was studied by direct observation.

*Keywords:* *Mischocyttarus alfkeni*, *Polistes lanio*, Behavioural repertoire

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*M. alfkeni*, in nests of up to 198 cells, showed a range of one to eight adult wasps per nest. The usual colony cycle for social wasps (founding phase, growth phase, reproductive phase and senescence) was apparent in this species.

Sample coverage of 0.96 in both *M. alfkeni* and *P. lanio* resulted in 50 behaviour patterns for the former and 49 for the latter. Analysis of the behavioural catalogues showed a small amount of variation between the species. There were more acts performed by the larger sized *P. lanio* than *M. alfkeni*. However, the smaller *M. alfkeni* was more active, having a rate of 0.68 acts/wasp/hour as opposed to *P. lanio*'s 0.25 acts/wasp/hour.

The class of behaviour patterns singled out for closer study was the self-grooming sequencing. Here was also great similarity between the two species, with the final removal of dust being from the front legs and hind legs. Observed transitions between grooming behaviours showed distinct patterns, with greater transitions among the front parts than the hind parts. Transitions between front and hind parts were much less than statistically expected.

Keywords: *Mischocyttarus alfkeni*; *Polistes lanio*; Behavioural repertoire;  
Behavioural catalogue and social wasp.

Thanks be to God. Great things He has done. This could not have been accomplished without His constant guidance and support.

To the members of my reading committee and specifically, my immediate supervisor, Dr. C. K. Sizer, who worked unflinchingly with me, I extend my deepest gratitude.

F. Haynes, I. Karsai, B. Louchrier, G. Legall, R. L. Jeanne, J. W. Wenzel and C. K. Sizer contributed to the statistics. For this I am very grateful.

The members of my family were very supportive. This certainly helped to make this achievement possible. Thank you.

Indeed, I must say thanks to The University of The West Indies, St. Augustine, for giving me this opportunity to pursue this course of study.