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SHORT COMMUNICATION

Observation of Fur-mites of the Family Atopomelidae and Listrophoridae (Acari: Astigmata) from Brown Rats (*Rattus norvegicus*) in Grenada, West Indies: A Preliminary Report

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ABSTRACT

Grenada is the southernmost country in the Caribbean sea with an area of 348.5 Km^2. The country with low hills, small trees, shrubs and tropical climate is most suitable for growth of rats as well as mites. During fecal examination from 170 brown rats (*Rattus norvegicus*) from Grenada for identification of gastrointestinal parasites, fur mites belonging to Atopomedilidae and Listrophoridae family were also observed in 18 (10.5%) in fecal samples. This is the first report of presence of fur mites in *R. norvegicus* from Grenada. It is concluded that rats should be regularly dewormed for enteroparasites.

Keywords: Fur mites, Grenada, *Rattus norvegicus*.

Mites of the family *Atopomelidae* and *Listrophoridae* are obligate parasites that have developed specialized morphological adaptations allowing them to permanently attach to the hair shaft and feed on sebaceous secretions and tissue particles (Wurst, 1993) from small mammal, marsupials, carnivores, insectivores, primates and rodents (O'Connor, 1982).

Grenada is the southernmost country in the Caribbean sea with an area of 348.5 Km^2. The country with low hills, small trees, shrubs and tropical climate is most suitable for growth of rats as well as mites. The presence of these mites on rats results in miniscule clinical symptoms, except in heavy infestation which can result in dermatitis, scratching and hair loss.

Fur mites of these families tend to be common in tropical and subtropical climates within both hemispheres and have been reported in Asia (Durden and Page, 1991), South Pacific (Wilson and Wodzicki, 1977), Hawaii (Radovsky *et al.*, 1979) and South American countries (Sikora and Bochkov, 2012). In the Caribbean, fur-mites are poorly studied and currently there is no published data regarding the presence fur mites within the rodent population.

During a project to detect the zoonotic pathogens in brown rats (*R. norvegicus*) from Grenada, fecal diagnostic test was performed on the gastrointestinal content of 170 rats to determine the prevalence and species of endoparasites. In addition to the anticipated parasites, the feces of 18 animals were observed to contain two distinct types of mites, which were possibly ingested during self-grooming and passed through the gastrointestinal tract.

The first type of mite measured 500 µm in length on average, subcylindrical in shape, morphological characteristic as observed by use of a compound microscope included; projecting tegmen over the gnathosoma, large post scapular median shield, legs with ambulacral discs at the tarsal end and the posterior end of the opisthosoma with transverse striae. These mites were identified as belonging to the family *Listrophoridae* within the genus *Afrolistrophorus*.

The second type of mite measured 404 µm length and 146 µm width on average, elongated bodies, lack of a projecting tegmen and curved structures on legs 1 and 2 to facilitate clasping to the hairs. These mites were shown to belong to the *Atopomelidae* family and was identified as

Listrophoroides cucullatus. These results show for the first time that fur-mites are present in the rodent population in Grenada. This study will provide foundation information for a future study geared towards examining ectoparasites on *R. norvegicus* to determine the prevalence of both pathogenic and non-pathogenic parasites some of which may be of public health significance due to their zoonotic abilities.

Ethical approval

The project (Detection of zoonotic pathogens in brown rats (*Rattus norvegicus*) in Grenada) was approved by the Institutional Animal Care and Use Committee (IACUC # 16009-R) of the St. George's University, Grenada.

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