

HOUSE DUST MITES: A PRELIMINARY REPORT FROM FIVE AREAS IN SRI LANKA

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Mites are found in every house in the dust that collects in mattresses, bedding, carpets and furniture. These microscopic arachnids known as house dust mites (HDM), feed on human skin scales which become colonized by moulds, yeast and bacteria. The mites produce allergens to which people get sensitized when exposed. The other indoor allergens of importance are animal hair and skin scales, cockroaches and pollen. Atopic individuals, in response to mite allergens, develop allergic reactions that manifest as symptomatic asthma, eczema, rhinitis and conjunctivitis¹. House dust mites belonging to 8 families in 3 super families have been recognized. The principal dust mite *Dermatophagoides pteronyssinus*, is distributed worldwide. In the tropics *Blomia tropicalis* is abundant and considered as an important species causing allergy¹. In Sri Lanka few studies have been conducted to determine allergen sensitization patterns among patients with asthma and allergic rhinitis. These studies have shown HDM to be an important allergen. There is, however, a paucity of information on HDM fauna in Sri Lanka. The present study reports on the identification of mites prevalent in houses in five different districts in Sri Lanka.

Dust samples were collected from mattresses in houses from climatologically different areas; Mt. Lavinia (Western Province), Kandy, Matale (Central Province), Anuradhapura (North Central Province) and Ambalangoda (Southern Province). Dust samples were collected using a vacuum cleaner from each mattress from 1 m² surface area, into a clean piece of cloth, which was then folded and stored separately in a sealed envelope. In the laboratory, each sample was weighed in an analytical balance and sieved through a mesh. Dust was suspended in water and examined under a stereoscopic microscope at x 80 magnification. Mites were collected using a fine hair brush and were then mounted on lactic acid for examination under a light microscope. Identification of mites was made using keys of Colloff¹. Informed consent was obtained from household inmates prior to collection of samples.

Five houses of the five different areas were examined for HDM during June to November, 2012. A total of 12 mattresses were examined. HDM identified were *D. pteronyssinus*, *D. farinae* (Family: Pyroglyphidae), *B. tropicalis* (Family: Glycyphagidae), *Chortoglyphus arcuatus* (Family: Chortoglyphidae) and *Cheyletus* sp. (Family: Cheyletidae). Mattresses were of different material; foam, triple layered foam and rubber and coir. In the only triple layered foam mattress encountered in the house at Mt. Lavinia, no mites were found, although other mattress in the same house harbored mites (Table-1). *B. tropicalis* was the most common and numerous HDM recovered in the study, closely followed by *D. pteronyssinus*. Only one *D. farinae* mite was identified from the dust samples (Table-2). This appears to be the only report on the identification of HDM prevalent in Sri Lanka. We encountered five species of mites belonging to five families. No appreciable difference was observed in the distribution of these species² reported from Klang Valley in Malaysia, HDM, belonging to 22 species in 9 families. Sri Lanka experiences a similar climate and should harbor many more species than recovered in the present study.

Table 1: House dust mites(HDM) identified from five different areas in Sri Lanka (June-November2012)

Mattresses examined	Ambalangoda		Mt.Lavinia			Matale		Kandy			Anuradhapura	
	1	1	2	3	4	1	2	1	2	3	1	2
Species of mites												
Glycyphagidae												
<i>Blomia tropicalis</i>	+	+	+		+	+	+	+	+	+	+	+
Pyroglyphidae												
<i>Dermatophagoides pteronyssinus</i>	+	+	+		+	+	+	+	+	+	+	+
<i>Dermatophagoides farinae</i>	+											
Cheyletidae												
<i>Cheyletus spp</i>							+				+	
Chortoglyphidae												
<i>Chortoglyphus arcuatus</i>			+						+			

Table 2: Average density of house dust mites(per gram of dust) collected from each house in five different areas

Species of mites	Mt. Lavinia	Matale	Kandy	Anuradhapura	Ambalangoda
	mites/g	mites/g	mites/g	mites/g	mites/g
Glycyphagidae					
<i>Blomia tropicalis</i>	85	892	1235	1250	800
Pyroglyphidae					
<i>Dermatophagoides pteronyssinus</i>	37	392	686	812	400
<i>Dermatophagoides farinae</i>					100
Cheyletidae					
<i>Cheyletus spp</i>		107	58		
Chortoglyphidae					
<i>Chortoglyphus arcuatus</i>	6	71			

Although there is a paucity of information on the HDM fauna in Sri Lanka, few studies have been conducted on indoor allergen sensitization patterns using standardized allergen extracts^{3,4}. These studies have shown HDM allergens to be of importance in asthma and in allergic rhinitis patients. Further, the other authors showed *D.pteronyssinus* and *Blomia* mites to be the common allergens among asthmatics as well as non-asthmatics. *D. pteronyssinus*, found worldwide, and *B.tropicalis*, common in the tropics, are the most important HDM among the 13 species identified as allergenic. Both these species were found in all the locations surveyed in this study.

REFERENCES

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