

Parasitic mites of Surinam

X: Mites and fungi associated with house-floor dust ¹⁾

by

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ABSTRACT

Nine dust samples from the floors of houses in the Paramaribo region of Surinam, South America, were analysed for mites and fungi. Most of the mites were *Dermatophagoïdes pteronyssinus* (a pyroglyphid mite producing house dust allergen). Houses of the middle class tended to have more of these mites than those inhabited by the poor or the wealthy. The incidence of *Blomia* sp., *Suidasia medanensis* and *Aspergillus clavatus* could be due to the presence of stored rice.

INTRODUCTION

Respiratory disorders (excluding pneumonia) counted for 3.9 % of the deaths in Surinam during 1961-1965, and are to be considered a leading cause of death in this country (General Bureau of Statistics 1969). Allergies play most likely an important role in provoking these disorders.

Recently much attention has been paid to the house dust inhabiting mite family Pyroglyphidae as a source of house dust allergen (VOORHORST et al. 1969, BRONSWIJK and SINHA 1971). Analyses of house dust from the tropics are, however, few and incomplete (FAIN 1966, FAIN et al. 1969). In this report the mite fauna and to a lesser extent the fungus flora of house dust samples from Surinam are determined.

MATERIALS AND METHODS

During the last week of November 1969, floor dust samples were collected by vacuum-cleaner from houses in Paramaribo, inhabited by Creoles (2), Hindustani (1), Javanese (3), and Chinese (3). The mites in the nine samples were extracted by a flotation-centrifugation method (VOORHORST et al. 1969) omitting the sieving procedure. Mites were identified by using a phase-contrast microscope. Fungi in the dust were identified after they had been allowed to grow on potato-sucrose agar (SINHA et al. 1970).

RESULTS

Dermatophagoïdes pteronyssinus (Trouessart 1897) was the commonest mite in the houses of all race groups; it was particularly common among the middle class (Table 1). Another undescribed species of *Dermatophagoïdes* and *Malayoglyphus*

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intermedius Fain, Cunnington & Spieksma 1969, were also found. These pyroglyphid mites comprised 66.7 % of the mite fauna. *Blomia* sp., *Suidasia medanensis* Oudemans 1924, and Cheyletidae (predators) were common.

Table 1. Number of mites in one gram floor dust in different houses in Paramaribo.

Inhabitants Race/social class	Pyroglyphidae			<i>Blomia</i>	<i>Suida- sia me- danensis</i>	Cheyle- tidae	others	total	
	<i>D. pter.</i> ¹⁾	<i>M. inter.</i> ²⁾	others						
Creole/poor	22	—	—	3	1	4	3	33	
/middle class	149	—	—	4	2	8	6	169	
Hindustani/poor	37	—	—	6	3	—	4	50	
Javanese/poor	55	—	—	1	—	7	3	66	
/middle class	86	—	—	87	11	2	30	216	
/rich	42	8	—	9	—	2	3	64	
Chinese/poor	6	—	—	2	1	1	3	13	
/middle class	25	—	—	—	—	—	1	26	
/rich	12	—	2	11	1	—	1	27	
	%	65.3	1.2	0.2	18.5	2.9	3.6	8.3	100.0

¹⁾ *D. pter.* = *Dermatophagoides pteronyssinus*.

²⁾ *M. inter.* = *Malayoglyphus intermedius*.

Unidentified bacteria were present in all samples. Fungi were relatively rare, but this may have been due to the technique of isolation used. Species of fungi present in the samples were *Aspergillus clavatus* Desm., *A. flavus* Link., *A. niger* van Tieghem, and *Monilia sitophila* (Montagne) Saccardo. Other fungi identified to genus only were *Alternaria*, *Rhizopus*, and *Penicillium*.

Unidentified spores of fungi were observed in the bodies of the pyroglyphid mites. Yeast-like organisms filled up the whole body of one specimen, and were found to a lesser degree in three other specimens of *D. pteronyssinus* and in one of *M. intermedius*.

DISCUSSION

In every race group the highest numbers of Pyroglyphidae were obtained from the middle class (Table 1). Other taxa of mites did not show this tendency. Unfortunately, I did not succeed in obtaining medical information on the distribution of allergic disorders in the different races and social classes. Research should be done in tropical regions on the distribution of allergic respiratory diseases and the role of mites for these disorders.

M. intermedius seems to be an inhabitant of tropical house dust only. It has been found in houses in Singapore (FAIN et al. 1969), Djatinegara and Djakarta (Java) (FAIN et al. 1969), and Taipei (Formosa) (OSHIMA 1970).

The fungi *A. flavus*, *A. niger*, *Alternaria*, *Rhizopus* and *Penicillium* were also found in Canadian house dust together with pyroglyphid mites (SINHA et al. 1970).

Ninety kg/capita/year of rice were used in Surinam in 1964 (General Bureau of Statistics 1969). The presence of *Blomia* sp., *S. medanensis* and *A. clavatus* could be due to the presence of stored rice in the households. *Blomia* sp. and *Suidasia nesbitti* Hughes 1948 occur in floor dust in Japan (OSHIMA 1970), where rice consumption is high. In house dust samples from Indonesia and The Philippines, other rice eating countries, I found high numbers of *Blomia* sp. *A. clavatus* and *A. flavus* have been isolated from rice of Japanese origin (H. A. H. WALLACE, personal communication).

M. sitophila is known as the read bread mold. It occurs in bakeries (REED 1924), occasionally in soil (BARRON 1968), and sugar cane bagasse in store (SHEAR & DODGE 1927). It is also abundant in sugar cane fields after burning (J. T. MILLS, personal communication).

A yeast, *Acaromyces glycyphagi* Bekker was associated with *Glycyphagus destructor* (Schrank 1781) (BEKKER 1943). Like BEKKER I was unable to determine if the yeast was pathogenic and caused the death of the mite.

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Kennis van de wijze waarop de omvang van een populatie wordt gereguleerd door factoren van het fysische milieu, factoren uit het biotisch milieu (predatoren, parasieten, voedselbronnen) en intrinsieke factoren is van het grootste belang voor vele onderdelen van de oecologisch georiënteerde biologie. De populatiedynamica is ten nauwste betrokken bij problemen uit de oecologie, toegepaste biologie (exploitatie van natuurlijke hulpbronnen — visserij —, toegepaste entomologie en natuurbescherming) en de evolutiebiologie.

Gegroepeerd in een tiental hoofdstukken, die tesamen een goed overzicht geven van het gehele terrein van de populatiedynamica, bevinden zich in dit werk de teksten van een veertigtal lezingen, met samenvattingen, literatuurlijstjes en de teksten van de discussies. De meeste voordrachten zijn van uitstekende kwaliteit.

Het werk is bijzonder aantrekkelijk uitgevoerd. Door de zeer uitgebreide indexering is de waarde van het boek nog aanmerkelijk toegenomen. — W. N. ELLIS.