



EDITORIAL

Ecology and Taxonomy of Allergenic Domestic Mites

Introduction/Domestic Mites

There are several thousands of mite species, which have a free, saprophagous or parasitic way of living, but never come into close contact with men. Of the relatively few which do live in the human environment¹ the best known are some of medical importance like scabies mites, or chigger mites; or some of economic importance like spider mites, and storage mites. There is, however, a group of mites which tends to share the human habitat or the human "nest": the Domestic Mites.² Within this ecologically defined group we distinguish other sub-groups, like house dust mites, storage mites, and their predators and parasites.³

House Dust Mites

The definition of house dust mites is: those members of the nest dwelling mite family Pyroglyphidae, which have been found regularly in the human home. Of the appr. 40 members of this whole family, about 10 species could be considered as true house dust mites.³ These mites appear to be well adapted to the conditions in the human home, and they probably play a useful role in a

biological recycling process for human waste products. Particularly for *Dermatophagoides pteronyssinus*, which has a very wide-spread occurrence in Europe, Asia and America, the ecological aspects have been studied.⁴ Their natural diet is almost certainly (human) skin scales; the optimum temperature for their population growth lies around 25°C, and their relative air humidity preference is around 80%. These two physical parameters are of decisive importance for their (relative) presence in various environments and seasons. They are common in moderate to damp climates, and during the not-dry indoor air period of the year. They are absent or low in numbers in constantly dry climates, and during the dry indoor air periods. It seems that these ecological characteristics are very much the same, although not identical, for other common pyroglyphid house dust mites like *D. farinae*, *D. microceras*, and *Euroglyphus maynei*.

Storage Mites

Most of the other mites which may live in the human habitat, are representatives of the storage mites,

like *Acarus siro*, *Tyrophagus* spp, *Lepidoglyphus destructor*, *Glycyphagus domesticus*, *Blomia tropicalis* and many others, belonging to various mite families. Although their occurrence in the human dwelling is considered to be less typical than that of pyroglyphid house dust mites, they can develop into massive populations not only in stored food supplies, but also in human homes, provided that ecological conditions are favourable.

Allergenic Species Specificity

From allergological point of view, it has been shown that there is concurrency in allergic sensitization to mites and mutual inhibition of allergens, suggesting cross reactivity, at least to a certain level.⁵ On the other hand there is also species specificity of the allergenic products. Therefore, it is of great importance that also in allergological work, a correct identification of the mites encountered is carried out. To facilitate this, pictorial keys for the most frequent allergenic domestic mites have been published recently.⁶

F.Th.M. Speksma, Ph.D.

Laboratory Aerobiology, Department of Pneumology, University Hospital P.O. Box 9600, NL-2300 RC LEIDEN, The Netherlands.

REFERENCES

1. Speksma FThM. Mite biology. *Clin Rev Allergy* 1990; 8 : 31-49.
2. Platts-Mills TAE, Thomas WR, Aalberse RC, Vervloet D, Chapman MD, *et al.* Dust mite allergens and asthma: report of a second international workshop. *J Allergy Clin Immunol* 1992; 89 : 1046-60.
3. Speksma FThM. Domestic mites: their role in respiratory allergy. *Clin Exp Allergy* 1991; 21 : 655-60.
4. Colloff MJ. Practical and theoretical aspects of the ecology of house dust mites in relation to the study of mite-mediated allergy. *Rev Med Vet Entom* 1991; 79 : 611-30.
5. Johansson E, Borga A, Johansson SGO, Hage-Hamsten M van. Immunoblot multi-allergen inhibition studies of allergenic cross-reactivity of the house dust mites *Lepidoglyphus destructor* and *Dermatophagoides pteronyssinus*. *Clin Exp Allergy* 1991; 21 : 511-8.
6. Colloff MJ, Speksma FThM. Pictorial keys for the identification of domestic mites. *Clin Exp Allergy* 1991; 22 : 823-30.