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# Dust Mites

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COLLOFF, M. J. 2009. Dust Mites. CSIRO Publishing and Springer Science, Dordrecht, The Netherlands. 583 pp. ISBN 978-9-481-2223-3. Hardback. $189.00.

Wow! This new volume on dust mites is amazing. You may wonder how this book on dust mites can contain 583 pages, but it contains EVERYTHING you might want to know about dust mites and, perhaps, more. Until this volume was published the literature on dust mites was scattered. Now it is possible to access what is known about dust mites in one volume, which will serve as the benchmark for future studies. Colloff points out that we cannot learn how to alleviate the problems caused by dust mites unless we have a holistic understanding of all aspects of their biology, physiology, molecular biology, ecology, distribution, taxonomy, and the mechanism(s) by which they cause human allergies. Unfortunately, there is no simple 'silver bullet' for controlling these household pests.

*Dust Mites* was written for acarologists, entomologists, medical professionals who deal with human allergy, epidemiologists, as well as for ecologists and others interested in the tiny mites with whom we share our homes. It is the most comprehensive text ever written about these coinhabitants of our houses. The relationship between dust mites and humans appears to be an ancient one, although changes in home construction and furnishings styles may be altering the species composition of these mites and is one of the methods by which we can suppress dust mite populations. Colloff reviews all of the ways in which we can reduce the ability of these mites to survive in our home furnishings, including our beds, pillows, draperies, carpets, sofas and chairs, where they feed on human skin cells and other detritus in dust.

Why study dust mites? According to Colloff, about 1-2% of people (65-130 million people) around the world are genetically prone to suffer from serious allergies to house dust (actually to the allergens in the feces of the house dust mites). The recognition that dust mites can cause human allergy was only accepted about 30 years ago. Since then, research around the world has been conducted to better understand dust mite-induced allergies and how to control them. However, in addition to their medical importance, these mites have an amazing ability to survive under difficult environmental conditions and are worthy of study on their own.

This volume consists of chapters on: the identification and taxonomy of the Glycyphagoidea and Acaroidea, superfamilies of mites which contain species called 'dust mites', including keys to the different species; their physiology and internal anatomy, including how the allergens are formed in the gut of the mite; water balance in the mites, a key factor in their survival in homes; dust mite ecology; the development, life histories and population dynamics of dust mites; methods for studying house dust mite ecology and biology; dust mite allergens; allergy and epidemiology; control of dust mites and allergen avoidance; and, finally, a chapter reflecting on why dust mites are still a problem, with some speculations on how future changes in climate and control methods may affect dust mites. In addition, there are four appendices containing a catalogue of the mite family Pyroglyphidae; a list of the distribution of species of domestic mites; a list of the abundance and frequency of occurrence of house dust mites; and a list of the concentrations of the allergens found in house dust mites, as well as a lengthy list of references and an index. Colloff writes on each of these topics in a manner that makes them accessible to all. For example, he provides a clear explanation on the concepts underlying the taxonomy of dust mites, as well as the principles underlying studies on their population dynamics.

So, what is the bottom line? Well, there is still a great deal to be learned about dust mites themselves and the epidemiology of the allergens they produce. Colloff also makes it clear that these tiny animals are worthy of study from a variety of scientific viewpoints. This volume provides thoughtful assessments and ideas for future study. However, if you are hoping to completely eliminate dust mites from your home, this volume will not tell you how to do that. It will, however, provide multiple methods with which to reduce dust mite populations and their allergens, which may be sufficient to reduce human suffering from dust mite allergies. These tools include chemical controls, physical controls, removal or inactivation of allergens, and prevention of mite colonization of homes. Key tools include increased sanitation, reducing relative humidity in homes, elimination of carpets, draperies and other sites where dust mites can persist, covering mattresses and pillows with impermeable covers, use of drying, heating and freezing, and the design and construction of homes that reduce the ability of mites to colonize homes. Although this book is not one that is easy to read from cover to cover due to its very detailed discussion of topics, it is so well indexed and organized that it is possible to find the sections covering topics of interest to the reader. It also is well illustrated with black and white diagrams, figures and photographs.

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