TACTICS FOR REDUCING INDOOR ARTHROPOD ALLERGENS

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The past few years have seen an unprecedented interest in indoor air quality, driven in part by unexplained increases in asthma throughout the world. According to the American Academy of Allergy, Asthma, and Immunology, allergic rhinitis affects more than 40 million people yearly in the US, resulting in US $4.5 billion expenditures for medical care. Annually, asthma affects 15 million people, causes more than 5,000 deaths, and generates medical costs exceeding US $10 billion.

Dust mites are well-documented contributors to indoor allergies, and cockroaches have recently been implicated as extremely important contributors as well, particularly in the inner-cities of the U.S. Recent studies have indicated that use of toxic baits effectively reduces indoor cockroach populations, and over time, their associated allergens, with little risk to allergy patients and other occupants.

Effectively managing indoor, arthropod-produced allergens will likely require a two-pronged approach, however. Removing the allergen source prevents further allergens from being produced, but this still leaves what might be years of residual allergen within the dwelling. We propose that for cockroach-induced allergies, an approach similar to IPM and which we will call IAM (Integrated Allergen Management), may be effective and would need to include attention to both the allergen source, and the residual allergens. Tactics against the allergens could include physically removing them or in other ways rendering them non-allergenic. We report on early research illustrating that low-levels of the active ingredient sodium hypochlorite (bleach) causes changes in cockroach allergens. Further, cleaning simulations in the laboratory, especially those using bleach-based solutions, indicate that these results can be extended to practical applications.

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