RESEARCH NOTE

FIRST REPORT ON SENSITIZATION TO ALLERGENS OF A HOUSE DUST MITE, *SUIDASIA PONTIFICA* (ACARI: SAPROGLYPHIDAE)

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Abstract. A species of house dust mite, *Suidasia pontifica*, was recently shown to produce allergens affecting man. The species may be as important as other allergen producing mite in sensitization and causing allergic symptoms in Malaysians. Surveys conducted demonstrated that 80% of the houses surveyed were positive for this mite with densities ranged from 2 to 50 mites per gram of dust. Colonies of the species has been successfully established and materials from those colonies have been used to produce extracts for studies on sensitization to the mites. A total of 85 suspected allergic rhinitis patients were tested and 74.1% demonstrated positive reactions. Extract of this mite should be considered for routine diagnostic testing and possible immunotherapy.

Among the numerouse species of mites found in house dust is *Suidasia pontifica*. Although suspected to be involved in dust sensitivity (Pearson and Cunnington, 1973), sensitization to this species has not yet been reported.

Distribution studies in Malaysia have demonstrated *S. pontifica* to be present in 80% of the houses sampled (Mariana, unpublished). Its reported densities ranged from 2 to 50 mites per g of dust. Colonies of the species has been successfully established in the Division of Acarology, Institute for Medical Research, Malaysia. Materials from those colonies have been used to produce extracts for studies on sensitization to the mites.

Extracts of *S. pontifica* were prepared according to the method of Stanaland *et al* (1994). One gram of defatted mites was extracted in 0.1 M ammonium bicarbonate for 24 hours at 4ºC under constant stirring. The extract was next clarified by centrifugation at 18,000 rpm and dialyzed overnight at 4ºC against deionized water using a dialysis membrane with a 3,500 MW cutoff. The dialyzed extract was centrifuged, filtered through a 0.2 µm membrane. The protein content of the prepared extract was determined using a protein estimation kit based on a modified micro-Lowry method. The extract was diluted with sterile 50% glycerol to a 0.5% solution.

Biological standardization of the extract was carried out based on a modification of the Nordic Guidelines (Dreborg, 1992). Five 10-fold dilutions of the stock extract were prepared. A drop of allergen extract was applied on the skin of the forearm of each subject. Histamine 1 mg/ml and 10 mg/ml (as positive controls) and diluent (as negative control) were also included for testing. A sterile lancet was used to lift the skin gently through the drop of allergen. After 15 minutes, the prick site was examined.

Patients with a positive history of allergy and more than 15 years of age from the Department of Otorhinolaryngology, National University of Malaysia, were selected to participate in the study. Each patient was skin prick tested starting with the highest dilution. Twenty patients who have wheals induced by any of the allergen dilutions from 10^{-3} to 10^{-5}, the same size as or larger than that of the 1 mg/ml histamine dihydrochloride were selected. Based on the wheal sizes of these 20 selected patients, the concentration of extract eliciting a wheal the same size as that of histamine dihydrochloride 10 mg/ml in the same patient, was estimated by regression line analysis for each of the patient. The mean of the 20 concentrations was then calculated. That mean concentration was

accorded 10,000 biological units/ml (BU/ml) and was used for further testing in other patients. In subsequent testing, a wheal size of greater than 3 mm, was considered a positive reaction.

A total of 85 suspected allergic rhinitis patients were tested and 74.1% demonstrated positive reactions. Approximately 17.6% of the patients exhibited very strong reactions, *ie* with wheals the same size or larger than that of 10 mg/ml histamine dihydrochloride.

These findings clearly demonstrated that *Suidasia pontifica* is another species of dust mite that produces allergens affecting humans.

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