



Available online at www.ptat.thaigov.net

The First Reported Case of Mites, *Suidasia pontifica*, in the External Ear Canal of a Thai Agricultural Worker

**Yudthana Samung¹, Charnnarn Apiwathnasorn¹, Suttee Wonglakorn²,
Anon Phayakkaphon¹**

¹ Department of Medical Entomology, Faculty of Tropical Medicine, Mahidol University, Bangkok

² Department of Otolaryngology, Si Sa Ket Hospital, Si Sa Ket, Thailand

Abstract

The external auditory canal of a 57-year-old woman in Si Sa Ket Province was infested with > 20 mites. She complained of severe itching and a feeling of insects crawling in her right ear during the shallot (*Allium ascalonicum*) harvesting season. Mite specimens were collected from the patient's ear and preserved in 90% alcohol. The remainders were removed by suction. The specimens were mounted with Hoyer's medium and identified as the stored product mite, *Suidasia pontifica*. Possible sources of infestation were investigated by inspecting and collecting mites on dried chilies, shallots, and garlic bulbs, as well as house dust and other materials related to their cultivation, such as straw from the patient's house. *S. pontifica* were recovered from house dust, shallots, and garlic bulbs. It was suspected that the mites entered the ear during the handling of these infested materials. This is the first report of stored product mites being implicated in occupational health in Thailand. Several species of mites have been reported to infest stored products; therefore, additional species of mites potentially injurious to agricultural workers are expected. An appropriate method of collecting mites, to permit correct identification, and for bionomics studies, is needed.

Keywords: mite, *Suidasia pontifica*, external auditory canal

Introduction

As a consequence of their small size, mites (Acari) are able to exploit specific habitats and ecological niches unavailable to larger arthropods. Among these habitats are many that are specifically created by other animals, both invertebrates and vertebrates. Such habitats include nests, burrows, galleries, food storages, fungus gardens, uneaten prey remains, refuse piles, dung and carrion, as well as a multitude of microhabitats on and in the bodies of host animals themselves [1-2]. Mites also produce allergens that are one of the common causes of human allergic respiratory disease in many regions of the world. Pyroglyphid

mites, such as *Dermatophagoides pteronyssinus* and *D. farinae* are distributed worldwide and have been identified as important sources of house dust-derived allergens, and inducers of allergic respiratory diseases [3-4]. However, other genera such as the *Suidasia*, has also been found in the house dust of asthmatic patients in this tropical locale [5]. *Suidasia* spp are best known as pests of stored products and insect collections [6-7]. In Thailand, Watana Jaronsri *et al* [8] conducted a taxonomic study of mites associated with stored products, and found 4 families with 10 species that posed agricultural health risks; *Suidasia pontifica* Oudemans was one of these. This study is the first

report of a *Suidasia pontifica* mite from the human auditory canal in Thailand.

Case Report

A 57-year-old woman complained of three-day onset otalgia; with no prior fever, cold, cough, sore throat, ear itch, or any ear injury, but with severe ear itching and a feeling of insects crawling in the ear. She visited Si Sa Ket Hospital for medical service. Standard health check-up was normal; left ear examination by otoscope was normal, but the right auditory canal was rather red without ulcer and no secretion. Tympanic membrane was injected but no perforation seen. Inspection by video-otoscope revealed > 20 mites in the external ear canal. Mite specimens were collected from the patient's ear and preserved in 90% alcohol. The rest were then removed by suction. The specimens were mounted with Hoyer's medium and identified using identification keys [5] as the stored product mite, *Suidasia pontifica* Oudemans (Fig 1).

The possible source of infestation was investigated by inspecting and collecting mites

on dried chilies, shallots, and garlic bulbs, as well as house dust and other materials related to their cultivation, such as straw from the patient's house. Stored products and house dust were sent to the Department of Medical Entomology, Faculty of Tropical Medicine, Mahidol University. All mites present in each sample were collected with a fine needle, placed in two drops of Hoyer's medium on a microscope slide, warming the slide on a Bunsen burner for 2-3 seconds to extend all body parts of the mite, then identified using identification keys and reference slides [5]. *S. pontifica* were recovered from house dust, shallots, and garlic bulbs.

Discussion

Mites have been found in the external auditory canals of humans. Cho *et al* [9] reported *Sancassania berlesei* Michael from a man. Ho and Wu [10] reported *Suidasia pontifica* Oudemans from a woman. Both mites are, generally, pests of stored products. *Suidasia* mites have been reported to infest the human intestine [11] and the pulmonary system [12], or to have an allergenic role in exposed populations.

The current case was a female onion planter, around whose house agricultural products were stored. It was suspected that the mites entered the ear during the handling of these infested materials. This is the first report of stored product mites being implicated in occupational health in Thailand. Several species of mites have been reported to infest stored products; therefore, additional species of mites injurious to agricultural workers are expected to be found. It is suggested that good personal hygiene such as hand washing after harvesting and handling products in the fields is an important preventive measure. An appropriate method for the collection of mites, to permit correct identification, and for bionomics studies, is needed.



Fig 1 *Suidasia pontifica* (400x)

References

1. Lindquist EE. Relationships between mites and insects in forest habitats. *Can Entomol* 1970;102:978-84.
2. Lindquist EE. Associations between mites and other arthropods in forest floor habitats. *Can Entomol* 1975;107:425-37.

3. Platts-Mills TA, Vervloet D, Thomas WR, Aalberse RC, Chapman MD. Indoor allergens and asthma: report of the Third International Workshop. *J Allergy Clin Immunol* 1997;100: S2-24.
4. Colloff M, Stewart G. House dust mite. In: Barnes P, Grustein M, Leff A, Woolcock A, editors. *Asthma*. Philadelphia: Lippincott-Raven; 1997. p. 1089-103.
5. Fernández-Caldas E, Puerta L, Mercado D, Lockey RF, Caraballo L. Mite fauna, *Der p1*, *Derf* and *Blomia tropicalis* allergen levels in a tropical environment. *Clin Exp Allergy* 1993;23:292-7.
6. Hughes AM. The mites of stored food and houses. London: Ministry of Agriculture, Fisheries and Food, HMSO. *Tech Bull* No. 9; 1976.
7. O'Connor B. *Astigmata*. In: Parker S. editor. *Synopsis and classification of living organisms*. Vol. 2. New York: McGraw Hill; 1982. p. 146-69.
8. Jaronsri W, Kongcheunsin M, Kulpiyawat T. Taxonomic study on mites associated with stored products. Research Report, Taxonomy and Research for Mites Unit Entomology and Zoology Division, Department of Agriculture, Thailand, 2003. p. 792-801.
9. Cho JH, Kim JB, Cho CS, Huh S, Ree HI. An infestation of the mite *Sancassania berlesei* (Acari: Acaridae) in the external auditory canal of a Korean man. *J Parasitol* 1999;85:133-4.
10. Ho CC, Wu CS. *Suidasia* mite found from the human ear. *Formosan Entomol* 2002;22: 291-6.
11. Martinez-Maranon R, Hoffmann A. 1976. Three cases of human intestinal infestation by mites in southern Veracruz. *Rev Invest Salud Publica* 1976;36:187-201. (in Spanish)
12. Sun X, Chen XB, Hu SF. Detection of serum immunoglobulins in pulmonary acariasis patients. *J Parasitol* 1990;8:131-3. (in Chinese)