

COMPARATIVE SCANNING ELECTRON MICROSCOPIC  
STUDIES OF TEGUMENT IN VARIOUS  
STRAINS OF SCHISTOSOMA JAPONICUM

BY

TUNYARUT KOONCHORNBOON

A THESIS SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF SCIENCE  
(ANATOMY)

IN THE

FACULTY OF GRADUATE STUDIES

OF

MAHIDOL UNIVERSITY

1983



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## SUMMARY

The surface of various strains of adult Schistosoma japonicum (Chinese, Philippine, Indonesian and Malaysian) were studied by scanning electron microscopy. The basic pattern of surface microtopography is similar to that described in earlier studies (Sakamoto & Ishii, 1977; Voge, Price & Jansma, 1978). However, among male members there are some unique differences in details, especially in the types, number and distribution of surface papillae and morphology of ridges. Three kinds of papillae were observed : (1) the large fungiform papillae (3 - 4  $\mu\text{m}$  in diameter, most without cilia) are more numerous in Malaysian and Indonesian than in other strains of S. japonicum; they concentrate on the lateral aspect of the anterior and middle parts close to the edges of the gynecophoral canal, and are especially numerous on the latero-dorsal aspect of the posterior part towards the tail tip; (2) in all strains, small hemispherical papillae (1.5 - 2  $\mu\text{m}$  in diameter, all bearing cilia) are numerous, especially in the suckers, the gynecophoral canal and parts of the tegument around the suckers and close to the tail tip; on the rest of the surface they are evenly distributed; (3) the cratered papillae (3 - 4  $\mu\text{m}$  in the diameter, about half having cilia) are most numerous in the Malaysian strain but absent in Chinese strain; they concentrate on the lateral aspect of the middle part and on the edges of the gynecophoral canal.

The surface ridges (about 0.2 - 0.6  $\mu\text{m}$  in width) are long-wavy, least branching and non-perforated in the Chinese strain. They are thicker and more branching in the Philippine and Indonesian strains. Furthermore, in

these strains they become leaf-like and microvillus-like on the posterior half of the body surface. The leaf-like and microvillus projections appear to be more developed and cover more extensive area on the surface in the Indonesian strain. The Chinese Philippine and Indonesian strains possess spines on the most posterior part close to tail end; however, the spines are large and more numerous in the latter two strains.

In the Malaysian schistosome, the surface ridges are tall, highly branching and perforated; they are most developed in the middle part. Spines were observed only in the suckers and the gynecophoral canals. These two characteristic are similar to S. mekongi.

In contrast to the males, the females of all strains have numerous spines on all parts of the surface except the most anterior, where a large number of long cilia were observed, especially the Malaysian strain. All three kinds of papillae are present. Fungiform papillae are most numerous in females of Malaysian strain; they concentrate on the latero-dorsal aspect of middle and posterior parts, and around the excretory pore. Ridges in all females are much less developed than in their male counterparts, and are observed only in the middle part.