

Trial of the estimation of migration source for vector of Japanese encephalitis  
(*Culex tritaeniorhynchus*) by PIXE

H. Suzuki<sup>1</sup>, K.Sawabe<sup>2</sup>, O.Komagata<sup>2</sup>, S. Goto<sup>3</sup>, C. Takahashi<sup>3</sup>, Y. Saitoh<sup>3</sup> and K. Sera<sup>4</sup>

<sup>1</sup>Graduate School of Pharmaceutical Sciences, Chiba University  
1-33 Yayoi-cho, Inage-ku, Chiba-shi, 263-8522, Japan

<sup>1</sup> Department of Medical Entomology, National Institute of Infectious Diseases  
Toyama 1-23-1, Shinjyuku-ku, Tokyo 162-8640, Japan

<sup>3</sup>Nishina Memorial Cyclotron Center, Japan Radioisotope Association  
348-58 Tomegamori, Takizawa, Iwate 020-0603, Japan

<sup>4</sup>Cyclotron Research Center, Iwate Medical University  
348-58 Tomegamori, Takizawa, Iwate 020-0603, Japan

## Abstract

The objective of this study was to determine the migration source of *Culex tritaeniorhynchus* by its element composition. In 17 samples consist of *Culex tritaeniorhynchus* from Japan, Vietnam and Philippines and Asian tiger mosquito (*Aedes (Stegomyia) albopictus*) from Japan, elements in “head and chest”, abdomen, leg and wing were determined by PIXE at NMCC. 13 elements (Na, Mg, P, S, Cl, K, Ca, Mn, Fe, Cu, Zn, Br and Sr) were detected in “head and chest”, abdomen, leg and wing. Using the analytical results of 13 elements, mosquito samples were analyzed using statistical software, including cluster analysis to categorized into particular groups. As a result, cluster analysis (Ward method) using 13 elements in “head and chest” seemed then effective in the method for estimation of the migration source of *Culex tritaeniorhynchus* than the analyzed case of abdomen, leg and wing.