Thesis title	Characteristic patterns of diphtheria toxin by gel electrophoresis
Name	Miss Suchitra Sangkasuwan
Degree	Master of Science (Public Health)
Thesis Supervisory Comittee	1) Assoc. Prof. Dr. Varanya Sangpetchsong
	2) Dr. Suchitra Nimmannitya
	3) Assoc. Prof. Dr. Srisin Khusmith
	4) Assoc. Prof. Orasa Suthienkul
Date of Graduation	November 16 , 1987

ABSTRACT

Diphtheria is a communicable disease which is one of the serious problems in public health in the developing countries with tropical climate like Thailand . The big problem concerning this disease are prevention and treatment that will decrease the severity of the disease . In order to control and prevent this sucessfully , we have to find a way to identify the patients and the carriers . The rapid and correct diagnosis would be a great benefit for the prophylaxis of the disease . The main objective of this study is to develope an appropiate technique that can correctly and rapidly diagnose the disease .

The patterns of toxin from C. diphtheriae derived from diphtheria patients was undertaken by using Western blot transfer and

immunoenzymatic reaction . The toxin cytotoxicity , toxin neutralization and ELISA inhibition test were included to characterized the toxin . The C. diphtheriae organisms were isolated from 21 clinical diphtheria patients from Children Hospital during May 1986 to February 1987 whose ages were 1 to 12 years and most of them had tonsillar diphtheria (52 %) . The majority of biotype of these agents was mitis (48 %) , subsequently intermedius (33 %) and then gravis type (19 %) . By Western blot analysis , the toxin preparations from all of 15 Elek test positive isolates except 2 had a single antigenic component of toxin with an molecular weight 20 K to 30 K dalton , the rests had double components with the major one of 28 K dalton . It was found that these toxin preparations had cytotoxicity activity with relative high titer ranging from 1:200 to 1:819200 , as well as neutralizing activity by diphtheria antitoxin . The ELISA inhibition titers were much lower varied from <1:20 to 1:5120 . In a comparative study of 6 cases with Elek test negative it was shown to have a very low cytotoxicity titer of 1:50 as well as the ELISA inhibition titer (<1:20) . All 6 strains of Elek test negative exhibited single reactivity for the toxin component with molecular weight varied from 14 K to 28 K dalton except one had two components of 22 K and 14 K dalton respectively . On the basis of approximate molecular weight , the immunoblotting activities would belong to fragment A but it requires further investigation .

Furthermore these 6 strains were tested for lysogenic immunity to specific β phage , it was found that all were immune to β phage indicating of lysogenic behavior .