PURIFICATION AND CHARACTERIZATION OF NEUROTOXIN PRODUCED BY *CLOSTRIDIUM BOTULINUM* TYPE C STRAIN 6813

Jun TERAJIMA

Department of Biochemistry
Faculty of Veterinary Medicine
Hokkaido University, Sapporo 060, Japan

The toxin produced by *Clostridium botulinum* type C strain 6813 (C-6813) was purified 1009-fold from the culture supernatant in an overall yield of 30%. The specific toxicity was 1.1×10^7 mouse minimum lethal doses per mg of protein. The toxin had a molecular weight of 144,000 composed of light and heavy chains with molecular weights of 52,000 and 92,000, respectively, linked by one or two disulfide bond(s).

The purified C-6813 toxin heavy and light chains reacted strongly with anti-type D heavy chain IgG and anti-type C_1 (C-Stockholm) light chain IgG, respectively. The amino acid compositions of C-6813 toxin heavy and light chains were similar to those of type D heavy chain and type C_1 light chain than to those of type C_1 heavy chain and type D light chain, respectively. In neutralization test, anti-C-6813 toxin IgG had neutralizing activity of 99.7% against both C-6813 toxin and C_1 toxin. On the other hand, anti-type C_1 toxin IgG had neutralizing activity of 99.7% against C_1 toxin but only of 20% against C-6813 toxin.

These results indicate that in the neurotoxin produced by the type C strain at least two subtypes exist.