Abstract

Acetylcholine is the neurotransmitter responsible for the transmission of impulses from cholinergic neurons to cells of innervated tissues. Its biosynthesis is catalyzed by the enzyme Choline acetyltransferase that is considered to be a phenotypically specific marker for cholinergic system. It is well known that the regulation of Choline acetyltransferase activity under physiological and pathological conditions is important for development and neuronal activities of cholinergic functions. We observed the distribution of Choline acetyltransferase in sections from the normal and denervated main electric organ sections of Electrophorus electricus (L.) by immunofluorescence using a anti-Choline acetyltransferase antibody. The animals were submitted to a surgical procedure to remove about 20 nerves and after 30 and 60 days, they were sacrificed. After 30 days, the results from immunohistochemistry demonstrated an increase on the Choline acetyltransferase distribution at denervated tissue sections when compared with the sections from the normal contralateral organ. A very similar labeling was observed between normal and denervated tissue sections of the animals after 60 days. However, Choline acetyltransferase activity (nmole ACh/ min/ mg of protein) in extracts obtained from electrocyte microsomal preparation, estimated by Fonnnus method (Fonnn 1975), was 70% lower in the denervated extracts.

Keywords

choline acetyltransferase, electrocyte, denervation, immunohistochemistry.