**Abstract**

Plasma butyrylcholinesterase (BChE) hydrolyzes ester-containing compounds such as succinylcholine, as well as acting as a scavenger against neurotoxic organophosphates (OPs). We previously found that Nippostrongylus brasiliensis infection makes rats more susceptible to OP toxicity by decreasing serum paraoxonase-1 (PON1) activity. In the present study, we examined the effects of N.brasiliensis infection on acetylcholinesterase (AChE) activity in plasma, red blood cells (RBCs), brain and diaphragm, as well as serum PON1 activity, in rats at day 7 after infection. N.brasiliensis infection significantly decreased plasma BChE and PON1 activities without significantly altering AChE activity in RBCs, brain and diaphragm. These results provide further insight into the unusual deleterious effects of intestinal nematode infections on body homeostasis.