Influence of Bi 58 Nowy (38% dimethoate) on pyrantel embonate concentration in the liver of rats

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Abstract

The aim of the study was to determine the concentration of pyrantel residues in the liver of rats in different time points after oral administration of pyrantel embonate as well as combined administration of the Bi 58 Nowy preparation (38% of dimethoate) and pyrantel embonate. The experiment was conducted in two stages involving different doses of compounds and modes of exposure. At the first stage, the animals were administered pyrantel embonate with a stomach tube at a dose of 1000 mg/kg b.w. twice in a two-week interval, i.e. on day 14 and 28, and the Bi 58 Nowy preparation with drinking water at a dose of 15.48 mg/kg b.w. for 28 days. At the second stage, the rats received pyrantel embonate at a dose of 400 mg/kg b.w. with a stomach tube for 3 consecutive days, whereas the Bi 58 Nowy preparation was administered at a dose of 38.7 mg/kg b.w. also with a stomach tube for 5 consecutive days. In the rats doubly administered with pyrantel embonate, its residues were present until day 14, whereas when the drug was administered for 3 consecutive days they were present until day 7 of the experiment. The maximum concentration of pyrantel embonate was found in the liver after the 3rd hour, whereas a considerable decrease occurred between the 3rd and the 12th hour. The combined administration of pyrantel embonate and the Bi 58 Nowy preparation caused a significant decrease in the concentration of pyrantel residues in the liver 3 and 6 hours after exposure, as compared to the rats receiving the drug alone.

Key words: pyrantel, Bi 58 Nowy, concentration, liver, rats

Introduction

Among the substances that pose a threat to humans and animals worth of special attention are pesticides. Owing to their extensive application, their co-action with various chemical compounds, including drugs, poses a severe problem from the perspective of both experimental and clinical toxicology. Interactions of pesticides with various xenobiotics are also one of the important elements of the health safety of humans and animals that are currently under in-depth scrutiny in research programmes in the European Union. Noteworthy is also the fact that, in practice, usually mixed intoxications occur, i.e. with simultaneous ex-