

The aim of this study was to examine the influence of pyridoxalisonicotinoylhydrazone (PIH) on alanine aminotransferase (EC 2. 6. 1. 2.). Alanine aminotransferase belongs to the group of pyridoxal enzymes. Pyridoxal-5'-phosphate is a prosthetic group of these enzymes.

There is a similarity to the structure of pyridoxal and isoniazide in the formula of pyridoxalisonicotinoylhydrazone.

PIH has been investigated for its potential iron-chelating activity. There are also studies about PIH's protective effect against cardiotoxicity caused by the treatment with anthracyclines. Cardiotoxicity is the main harmful side effect of the anthracycline medication.

There is a part which is similar to pyridoxalphosphate in the structure of PIH. That's why the influence of PIH on spectral properties of pyridoxal enzymes was studied.

For this spectral study we chose transaminases as suitable pyridoxal enzymes. During the catalyzed reaction they change their absorption spectra. Most common transaminase aspartate aminotransferase (AST) was not optimal for this study. AST absorbs in the same region where PIH does. Alanine aminotransferase absorbs in the spectrum separately and therefore it was convenient for this study.

UV-VIS spectra and circular dichroism (CD) spectra were measured.

The ability of providing CD spectra is the feature of optically active substances. PIH does not belong to the group of optically active substances. Free PIH does not offer CD spectra.

In the case of ALT, we confirmed maxima at 430 nm (pyridoxal form) and at 325 nm (pyridoxamine form).

We also confirmed the absorption maxima for PIH at 300 and 380 nm, its lability and successive decomposition.

The influence of PIH on ALT was investigated. PIH does not affect the transamination reaction. This is favourable in relation to its possible therapeutical application.