

ABSTRACT

The subject of the work was to evaluate the *in vitro* cytotoxicity of selected xenobiotics using a suitable cellular model. The aim was to determine a possible cytotoxic effect of potential antiinfective compounds from two different chemical groups. The first group includes representatives of the newly synthesized derivatives of substituted pyrazin-2,3-dikarbonitril (ZIP-34, ZIP-128, ZIP-130 a ZIP-136) and the second group is made of derivatives of chitosan with bound antituberculous active substances (Chi-2-SP and Chi-7). The tested samples were supplied by the Department of Organic and Inorganic Chemistry and Department of Pharmaceutical Chemistry and Drug Control, Faculty of Pharmacy in Hradec Kralove, Charles University in Prague.

To determine the cytotoxicity, a standard colorimetric method based on an evaluation of the metabolic state of cells was used. As the experimental model for assessment of hepatotoxicity the standard human hepatic cell line HepG2 was selected. As the parameter for assessment of cytotoxicity of the tested compounds the values IC_{50} were measured.

The values IC_{50} were identified for all substances from the group of ZIPs. The highest toxicity was found for ZIP-128 and the lowest for ZIP-136. But overall, the performed tests showed that the values IC_{50} are very similar and they do not differ substantially among compounds in this group. The cytotoxic effect of chitosan derivatives was relatively low, the value IC_{50} of the tested derivative Chi-7 could even not be determined since it showed in the examined concentration range no significant cytotoxic activity. This substance thus can be considered to be relatively non-toxic.