ABSTRACT

The aim of this thesis was to prepare 5-(benzyloxymethyl)-3-(4-bromophenyl)-2,5-dihydrofuran-2-one derived from cytostatically active 5-alkoxymethyl-3-(4-bromophenyl)-2,5-dihydrofuran-2-ones. However, none of the three proposed synthetic procedures led to the target molecule. Next we focused on the preparation of a series of 5-bis(acetyloxymethyl)-3-aryl-4-phenyl-2,5-dihydrofuran-2-ones with different aryl substitution derived from the antibacterially, antifungally and cytostatically active 5-bis(acetyloxymethyl)-3-(4-bromophenyl)-4-phenyl-2,5-dihydrofuran-2-one. The aim was to explore a relationship between aryl substitution in position 3 and biological activity of the compounds. The spectrum of products was also enriched by 5-acetyloxymethyl-3-aryl-4-phenyl-2,5-dihydrofuran-2-ones. In conclusion aryl substitution leads to a significant decrease or vanishing of the antibacterial, antifungal and cytostatic effects with the exception of 5-acetyloxymethyl-3-aryl-4-phenyl-2,5-dihydrofuran-2-ones, in which marginal antifungal (*Absidia corymbifera*), antibacterial (*Staphycoccus aureus* a *Staphylococcus epidermidis*) and significant cytostatic (L1210, HeLa S3, CCRF-CEM, $IC_{50} < 5$ $\mu mol.l^{-1}$) activities were found.