ABSTRACT

Charles University

Faculty of Pharmacy in Hradec Králové

Department of Biochemical Sciences

Candidate: Kateřina Blahová

Supervisor: doc. PharmDr. Iva Boušová, Ph.D.

Advisor: PharmDr. Martin Ambrož, Ph.D.

Title of diploma thesis: Anticancer activity of semisynthetic prenylflavonoids in SW480 cell line

Cancer belongs to the leading causes of mortality in developed countries. Colorectal carcinoma is the second most common cancer in the Czech Republic. Due to the development of resistance to classical chemotherapeutics, a search for new treatment strategies is ongoing. Prenylflavonoids belong to the natural compounds, which express anticancer effect, with xanthohumol and prenylated derivatives of naringenin belonging to the often-studied compounds. In this diploma thesis, anticancer properties of naringenin and its five semisynthetic prenylated derivates were tested in the cell line SW480, which is derived from colorectal carcinoma. Cell viability was monitored by the neutral red uptake test after 72 h treatment. For compounds with marked anticancer activity, the value of IC_{50} was determined and the effect of those compounds on the cell cycle was determined by flow cytometry. Substantial antiproliferative effect was found in four compounds (derivatives A, B, C, and E), values of IC_{50} for these compounds were in the range of 40.41 - 83,67 μM. The highest antiproliferative effect was found in derivative C, which was a mixture of isomers of compounds A and B. The cell cycle was not influenced by studied compounds.