

ABSTRACT

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Title of Thesis: Flavonoids and natural coumarins interactions with conventional medicine

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The aim of this diploma thesis is to give an overview of the interactions between conventional drugs and simultaneous use of flavonoids, coumarins or medicinal plants containing flavonoids and coumarins. Cited literature includes articles published since 2000 till 2018, that were collected mostly using online databases (Web of Science, Science Direct, PubMed, Google Scholar). Flavonoids can affect the metabolism of drugs through interaction with CYP450 enzymes, P-glycoprotein, ABC or SLC transporters. This type of interaction is particularly important for drugs with narrow therapeutic index such as cyclosporin, digoxin or warfarin. Furanocoumarins contained for example in grapefruit juice cause irreversible inhibition of CYP3A4 enzyme and affect the pharmacokinetics of many drugs. The major drug classes that have been reported to present pharmacodynamic interactions with flavonoids or natural coumarins are anticoagulants, cytostatics and central nervous system agents. The thesis also describes interactions of citrus juices, *Ginkgo biloba* extract and other medicinal plants like *Silybum marianum*, *Glycine max* or *Angelica sinensis*. Available information on the interactions of flavonoids and natural coumarins with conventional drugs is still inadequate and further investigation is required.