

Abstract

Presented bachelor thesis is an overview of the most important facts about flavin-containing monooxygenases (FMOs) found in literary sources. FMOs are enzymes, which participate on oxygenation of many foreign compounds which are soft nucleophils, thus compounds containing mostly nitrogen in their molecules as well as sulfur and sometimes also phosphorus and selenium. FMOs use molecular oxygen in their catalytic cycle, which is similar to catalytic cycle of cytochrome P-450: one molecule of oxygen is activated by its reduction in presence of NADPH, one atom of oxygen is incorporated to substrate molecule, meanwhile the second one is reduced to water.

In these days FMOs in mammals, bacteria, plants and yeast were described. Up to date five human genes FMOs (FMO1-FMO5) were detected. By three of those (FMO1-FMO3) genetic polymorphism was proofed.