

ABSTRACT

Charles University in Prague

Faculty of Pharmacy in Hradec Králové

Department of Pharmaceutical Chemistry and Pharmaceutical Analysis

Author: Panagiotis Michailellis

Supervisor: PharmDr. Petr Kastner, PhD.

Title of Diploma Thesis: HPLC evaluation of tyrosine and its metabolites

Tyrosine is an important precursor of catecholamines, which are dopamine, norepinephrine (noradrenaline), and epinephrine (adrenaline). These are neurotransmitters and hormones, crucial for every living organism. Therefore, their identification and evaluation in biological material would aim to understand their function and behavior more accurately.

This Diploma Thesis is a review on how to evaluate catecholamines and their metabolites in biological matter with analytical methods used in Pharmaceutical Analysis, especially with HPLC.

First chapters present theoretical knowledge about metabolism of tyrosine and its metabolites, how a sample from an organism should be treated in order to be examined, information about HPLC, CE, GC apparatuses and the main detectors used in analysis of these compounds.

In literature review, tables are presented, concerning different sample preparation methods, HPLC details and characteristics, and finally a sum of all the analytical methods studied for this Diploma Thesis. All the articles and experimental works included in tables were chosen among many others, as they considered to provide proper results and were the most suitable for this topic. Most of these experiments were published from 1999 until 2021, so anything stated as conclusion is valid until today (2022). Pharmaceutical Analysis is a rapidly evolving field and, in the future, evaluation of metabolites of tyrosine might slightly change.