SYNTHESIS OF NSAIDs DERIVATIVES OF TRYPTAMINE

Stanimir Manolov, Iliyan Ivanov*, Dimitar Bojilov, Valery Mollov

University of Plovdiv "Paisii Hilendarski" 24 „Tsar Assen" Str., Plovdiv, 4000, Bulgaria
*Corresponding author: ivanov@uni-plovdiv.bg

The Non-steroidal anti-inflammatory drugs (NSAIDs) are medications widely used to relieve pain, reduce inflammation, and bring down a high temperature. NSAIDs are used to relieve symptoms of headaches, painful periods, sprains and strains, colds and flu, arthritis, and other causes of long-term pain. We have used five members of the NSAIDs family as ketoprofen, naproxen, fenoprofen, flurbiprofen and carprofen (Figure 1) to obtain a series of new compounds interesting for analyzing their potential anti-inflammatory activity.

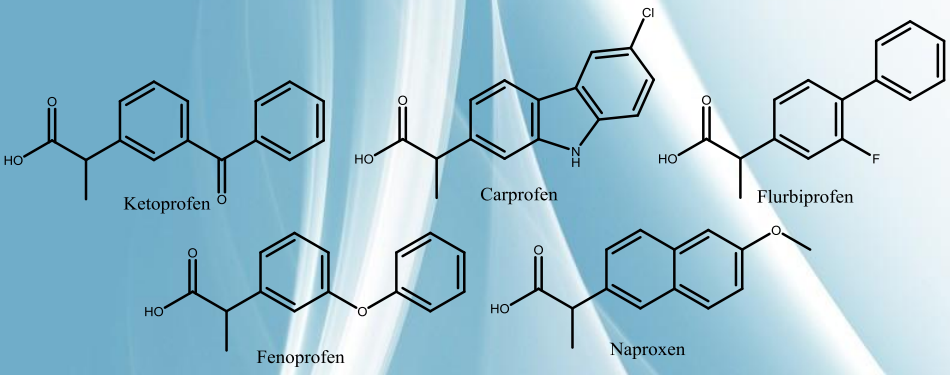


Figure 1. *Structural formulas of five NSAIDs we have used.*

Because of the number of contraindications and the incompatibility of the most of the NSAIDs with other drugs, it is of interest of obtaining new organic compounds enclosing a profen residue in the structure of its molecule.

Tryptamine is a bicyclic heterocycle and is the most important and best characterized member of the indole amine family. The tryptamine scaffold is regarded as a privileged structure, due to its broad applications for designing medicinal agents.

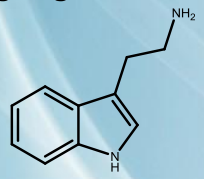
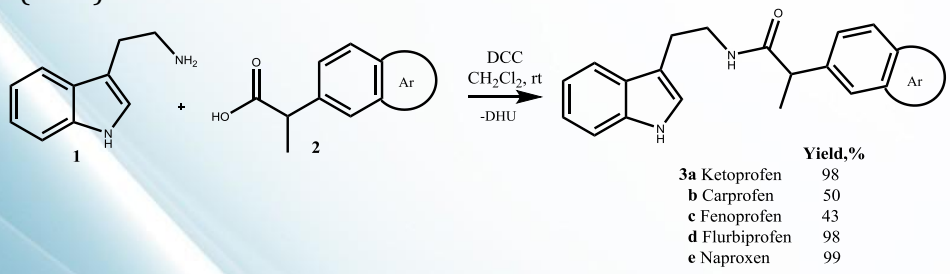


Figure 2. *Structural formula of Tryptamine.*

The tryptamine and its analogues have been reported to display varied pharmacological activities, such as antimigraine, antibacterial, antitumor etc.

In considering the significant biological activities of tryptamine and also of the NSAIDs it became interesting the obtaining of new compounds structurally containing a tryptamine moiety as well as aryl propionic (NSAIDs) residue attached thereto.

In searching of easy and eco-friendly method for obtaining of the target compounds we have found described in the literature method. The method uses amines and carboxylic acids for obtaining amide bonds using DCC as dehydrating agent. N, N-dicyclohexylcarbodiimide (DCC) is a dehydrating agent commonly used for the synthesis of esters, amides or anhydrides. It is commercially available as a crystalline waxy substance with a low melting point of 34-35°C. DCC reacts with the carboxyl group of aryl propionic derivative to produce an activated acylation agent that reacts with the amino group of the tryptamine molecule to form an amide bond (Scheme 1). The lower yields shown below (Scheme 1) of compounds **3b** and **3c** are related with the solubility of the starting NSAIDs in the solvent of the reaction (DCM).



Scheme 1. *Obtaining of NSAIDs tryptamine derivatives **3**.*

The resulting new compounds **3** (Reaxys) are characterized by their melting points, IR, ^{1}H- and ^{13}C-NMR spectra. The yields of the obtained compounds are presented in Scheme 1 above.

We acknowledge financial support from the National Science Fund of the Bulgarian Ministry of Education and Science (grant number **КП-06-М29/1**).