

Laboratory of Natural Products Chemistry



HEAD:

Prof. Zbigniew Czarnocki*, PhD DSc

GROUP MEMBERS:

Piotr Roszkowski, PhD DSc; Zuzanna Molęda, PhD; Joanna Szawkało, PhD; Anna Zawadzka, PhD
PhD students: Anna Kończyk, Karolina Staniak

RESEARCH PROFILE:

Asymmetric catalysis, stereoselective organic synthesis, medicinal chemistry

CURRENT RESEARCH ACTIVITIES:

Our main research areas are connected with the chemistry of natural products. In particular, we are interested in the stereoselective organic synthesis, often choosing natural compounds as our synthetic goals (alkaloids, lignans) or as chiral auxiliaries in various kinds of stereoselective synthesis, like asymmetric transfer hydrogenation (ATH).

Also, different heterocycles of pharmacological relevance are the subject of our study, together with the estimation of their biological activity. We were able to complete the synthesis of several natural products (crispine A, podophyllotoxin, tryptargine) and some heterocycles of pharmacological importance (aptazepine, praziquantel).

We are also interested in atropisomerism, which is a type of stereochemistry being a consequence of the hindered rotational barrier in suitably substituted biaryls and analogous compounds. Many biologically active compounds exist in the form of pure atropisomers and this phenomenon has important implications for medicinal chemistry.

We also work on the development of new multipotent cholinesterase inhibitors, designing and synthesizing hybrids of melatonin, tacrine and galantamine. The new hybrid cholinesterases inhibitors are protected by patents and can be used in relief and/or treatment of the neurodegenerative disorders, among them the Alzheimer's disease.

