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RESEARCH AREA

Nowadays, the majority of the approved drugs and biologically active compounds of quite complex structure contain heterocyclic moieties. Our research group focuses on the synthesis and development of potentially bioactive electron-rich aromatic carbo- and heterocycles. The transformations of potentially antitumor 8-hydroxyquinolines, indole and aza-indole derivatives, synthesis of naphtol based antibacterial compound group, and neuroprotective quinoline-carboxylic acid derivatives of elevated brain penetration make our research fields. In order to reach the target molecules, we utilize carbon-carbon coupling reactions such as aza-Friedel-Crafts and the modified Mannich-reaction. The scope of which was broadened for the starting heterocycles by our research group. The biological evaluation of the synthesised compounds are conducted in frame of different cooperations.

TECHNIQUES AVAILABLE IN THE LAB

A broad palette of organic synthetic methods can be acquired in our research group. Preparation and work-up can be learned, starting with easier amidations to more complex multicomponent and multistep syntheses, driven by classic and modern MW-assisted heating. One can be acquainted with column- or flash chromatography, and other organic preparative techniques through the purification and isolation processes. One can get familiar with structure analytical methods such as mass- or NMR-spectrometry and chiral HPLC, through the investigation of the isolated products.

SELECTED PUBLICATIONS

Lőrinczi, B., Csámapi, A., Fülöp, F., **Szatmári, I.** (2021) Synthetic- and DFT modelling studies on regioselective modified Mannich reactions of hydroxy-KYNA derivatives **RSC Adv 11:** 543-554.

Hegedűs, D., Szemerédi, N., Spengler, G., **Szatmári, I.** (2022) Application of partially aromatic ortho-quionone-methides for the synthesis of novel naphthoxazines with improved antibacterial activity **Eur J Med Chem 235:** 114391.

Lőrinczi, B., Simon, P., Szatmári, I. (2022) Synthesis of Indole-Coupled KYNA Derivatives via C–N Bond Cleavage of Mannich Bases. **Int J Mol Sci 23:** 7152.

Csuvik, O., Szemerédi, N., Spengler, G., **Szatmári, I.** (2022) Synthesis of 4-Hydroxyquinolines as Potential Cytotoxic Agents. **Int J Mol Sci 23:** 9688.

Simon, P., Lőrinczi, B., Hetényi, A., **Szatmári, I.** (2023) Novel Eco-friendly, One-Pot Method for the Synthesis of Kynurenic Acid Ethyl Esters. **ACS Omega 8 (20):** 17966-17975.