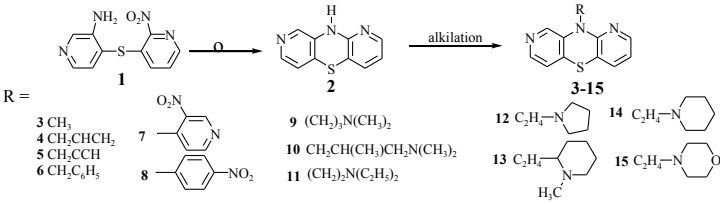
New Phenothiazine Analogues – Synthesis, Structure and Biological Activieties

Beata Morak-Młodawska[1], Krystian Pluta[1], Małgorzata Jeleń[1], Andrzej J. Bojarski[2], Grzegorz Satała[2], Kinga Suwińska[3]

[1] Department of Organic Chemistry, The Medical University of Silesia, Jagiellońska 4, 41-200 Sosnowiec, Poland , e-mail: bmlodawska@sum.edu.pl.

[2]Department of Medicinal Chemistry, Institute of Pharmacology, Polish Academy of Science, Smętna 12, 31-343 Kraków, Poland .[3]Institute of Phisical Chemistry, Polish Academy of Science, Kasprzaka 44/52, Warszawa, Poland

Phenothiazines are the oldest and the largest group of neuroleptic drugs. They exhibit also valuable antiemetic, antihistaminic and antitussive properties. Phenothiazines can interfere with a variety of cellular processes and potentially with other receptors and channels apart from the dopamine D_2 receptor, their known molecular target as psychotropic drugs [1]. Some modifications of the phenothiazine structures were directed into azaphenothiazines [2]. In our search we obtained new 10*H*-1,8-diazaphenothiazine **2** from sulfide **1** and transformed into the 10-substituted derivatives possessing alkyl, aryl, heteroaryl and dialkylaminoalkyl substituents **3-15**.



The identification of the diazaphenothiazine structure was based on ^{1}H NMR, ^{1}H-^{1}H COSY, NOE spectroscopy, mass spectrometry and X-ray analysis. Newly synthesized compound **3-15** were *in vitro* screening towards monoaminoergic receptors (D_2, 5-HT_{1A}, 5-HT_6, 5-HT_7).

[1] Sudeshna et al., Eur J Pharmacol. **2010**, *648*, 6-14. [2] K. Pluta et al., J. Heterocycl. Chem. **2009**, *46*, 355-391.

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