Under microwave irradiation conditions obtained tetrasubstituted imidazolidines incur aza-Claisen rearrangement with the nine-membered allene formation, which than immediately undergoes nucleophilic attack of the nitrogen atom on to the central carbon atom of the allene fragment. Followed oxidation of double electron-enriched bond by atmospheric oxygen finishes domino process by tetrasubstituted pyrrole forming.

In conclusion, new in-one-pot domino route to polysubstituted pyrroles from easily available 2-imidazolines and electron-deficient alkynes via 3,3-sigmatropic rearrangement/nucleophilic attack/oxidation has been demonstrated.

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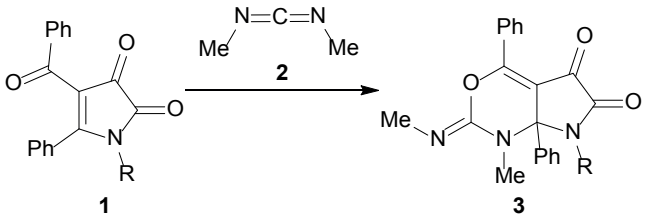
E. E. Stepanova, E. V. Khokhlova, E. A. Lystsova, A. N. Maslivets

Perm State University,
614990, Russia, Perm, Bukireva St., 15,
koh2@psu.ru

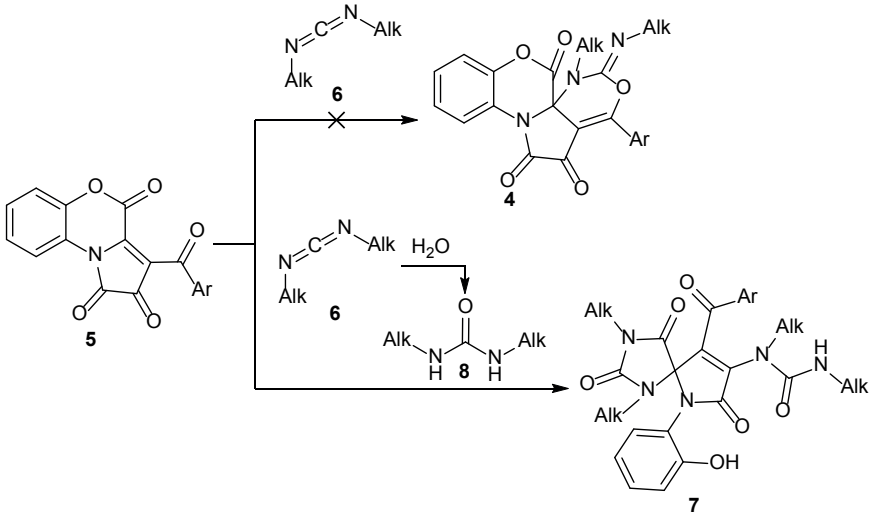
REACTION OF 3-AROYLPYRROLO[2,1-*c*][1,4]BENZOXAZINE-1,2,4-TRIONES WITH CARBODIIMIDES*

Keywords: carbodiimide, Chapman rearrangement, 1*H*-pyrrole-2,3-dione, spiroheterocycles, spiroheterocyclization.

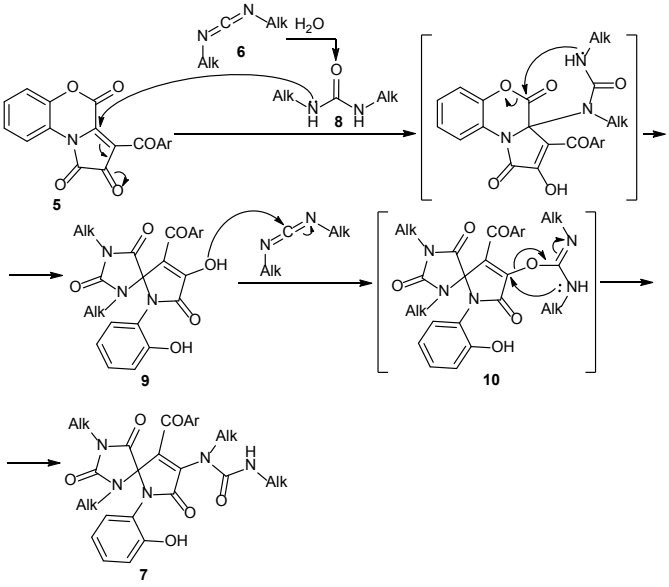
4-Benzoyl-5-phenyl-1*H*-pyrrole-2,3-diones **1** are known to readily undergo a [4+2]-cycloaddition reaction with dimethylcarbodiimide **2** to afford pharmaceutically interesting pyrrolo[2,3-*d*][1,3]oxazines **3** [1].



In order to obtain compounds **4**, tetracyclic analogs of pyrrolo[2,3-*d*][1,3] oxazines **3**, we investigated reaction of 3-aroylpyrrolo[2,1-*c*][1,4]benzoxazine-1,2,4-triones **5** [2, 3] with dialkylcarbodiimides **6**. As a result, spiroheterocycles **7** were obtained instead of the target compounds **4**.



We assume that compounds **7** were formed in several stages. The first stage was the hydrolysis of dialkylcarbodiimides **6** affording dialkylureas **8**. Then, dialkylureas **8** attacked on C^{3a} and C^{4} atoms of compounds **5** to form spirocompounds **9**. Next, spirocompounds **9** reacted with the excess of dialkylcarbodiimides **6** to result in isourea derivatives **10**. The last stage was Chapman rearrangement of isourea derivatives **10** to compounds **7**. This hypothesis was proved by the alternative synthesis of compounds **7** by the stepwise subsequent reaction of compounds **5** with dialkyureas **8** and dialkylcarbodiimides **6**.



Compounds **7**, **9** were examined for antibacterial activity against ESKAPE pathogens. Some compounds were found to be active against *Acinetobacter baumannii* and *Candida albicans*. Antimicrobial screening was performed by CO-ADD (The Community for Antimicrobial Drug Discovery), funded by the Wellcome Trust (UK) and The University of Queensland (Australia).

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M. P. Stukalova[1], A. N. Fedorov[2], Yu. G. Trishin[3]

[1]Peter the Great St. Petersburg Polytechnic University,
High School of Biotechnology and Food Technology,
19402, Russia, St. Petersburg, Novorossiyskaya St., 4,
[2]All-Russian Institute of Plant Protection,
196608, Russia, St. Petersburg – Pushkin, Podbelsky Highway, 3,
[3]Saint-Petersburg State University of Industrial Technologies and Design,
Higher School of Technology and Energetics,
198095, Russia, St. Petersburg, I. Chernykh St., 4,
moamasha18@gmail.com

SYNTHESIS OF (3,28-DIACETYLLUP-20(29)-EN-30-YL)EUGENOL

Keywords: eugenol, betulin, natural compounds, biological activity.

Natural compounds play an important role in development of new pharmaceuticals. Biologically active compounds from renewable plant sources serve as a target structure for different synthetic approaches to be applied. As a result of these chemical modifications a large variety of substances with valuable properties has been synthesized. The list of natural products being researched is limited according to several criteria: the compound should be simply isolated from