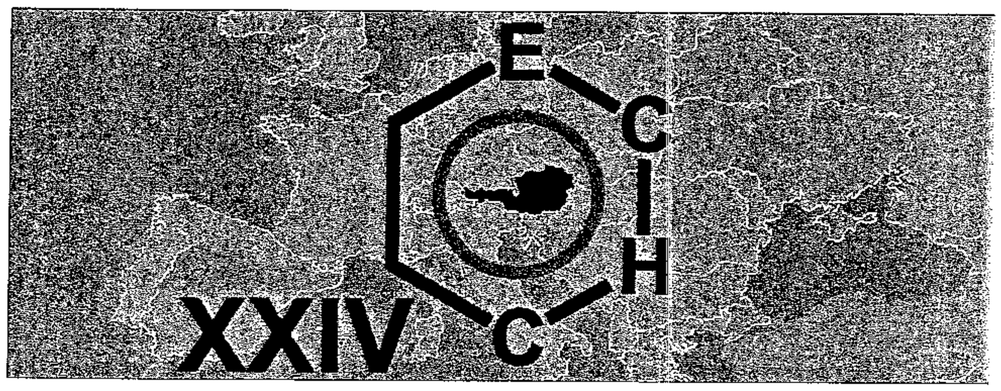
XXIVth

European Colloquium on Heterocyclic Chemistry



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CLICKING OF SUGARS: NOVEL BIS-TRIAZOLE-BRIDGED DISACCHARIDES

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A series of compounds with potential biological activity, 1,2,3-triazole-linked disaccharides, were synthesized via Cu(I)-catalyzed 1,3-dipolar cycloaddition [1]. 1,2,3-Triazoles are an important class of heterocyclic compounds due to their wide range of applications as pharmaceutical agents [2]. Triazole-carbohydrate conjugates exhibit a broad spectrum of biological properties such as inhibitory effects on the proliferation of leukemia cells [3] and glycosidases [4].

Novel stable triazole-linked disaccharides have been prepared by convenient and efficient Cu(I)-catalyzed cycloaddition between diacetone-D-glucose and diacetone-D-galactose derived azides and different diynes. We used commercially available 1,n-diynes or synthetically synthesized 2,2-dipropargyl dimedone and 5,5-dipropargyl Meldrum's acid. Two basic catalytic systems have been used – $CuSO_4$/sodium ascorbate and CuI/DIPEA.

Protecting groups are easily removed using acetic or trifluoroacetic acid. Biological activity of compounds will be discussed.

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[1] Rostovtsev, V. V.; Green, L. G.; Fokin, V. V., Sharpless, K. B. *Angew. Chem. Int. Ed.* **2002**, 40, 2596.
[2] For a recent example, see example: Kamal, A.; Shankaraiah, N.; Devaiah, V.; Laxma Reddy, K.; Juvekar, A.; Sen, S.; Kurian, N.; Zingde, S. *Bioorg. Med. Chem. Lett.* **2008**, *18*, 1468–1473 and references cited therein.
[3] El Akri, K.; Bougrin, K.; Balzarini, J.; Faraj, A.; Benhida, R. *Biorg. Med. Chem. Lett.* **2007**, *17*, 6656.
[4] a) Rossi, L. L.; Basu, A.; *Bioorg. Med. Chem. Lett.* **2005**, *15*, 3596; b) Périon, R.; Ferrières, V.; García-Moreno, M. I.; Oritz Mellet, C.; Duval, R.; García Fernández, J. M.; Plusquellec, D. *Tetrahedron* **2005**, *61*, 9118.

SYNTHESIS AND TRANSFORMATIONS OF ENANTIOPURE 7-AMINO-TETRAHYDROINDAZOL-4-ONES

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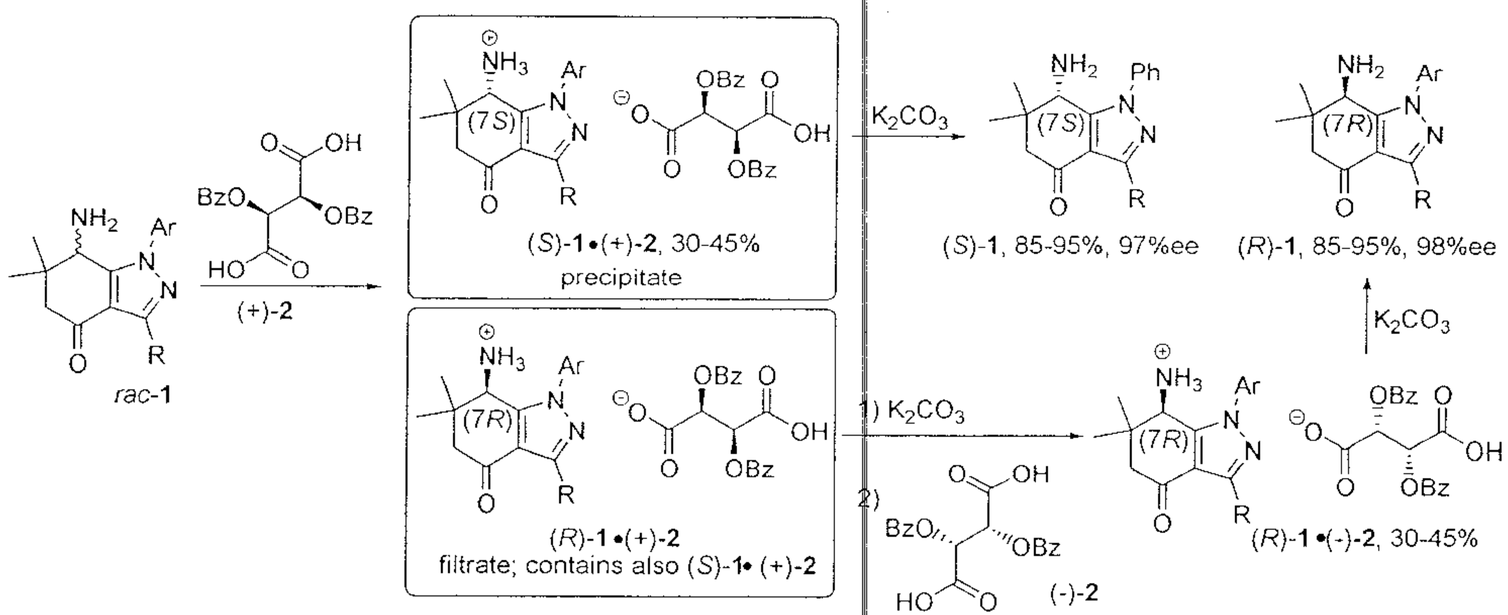
Tetrahydroindazoles (THIs), as a group of fused-pyrazoles have experienced significant renaissance in the last decade. This is explained by the fact that the above mentioned molecular scaffold can be perfectly derivatized to create a broad spectrum of distinct biological activities. Thus, different derivatives of THIs exhibit properties that allow to consider them as potential herbicides, anti-inflammatory drugs, anticancer substances, etc.

Recently, we have reported the synthesis of 7-triazolyl-THIs [1]. In order to dimerize these building blocks and/or to conjugate them with products coming from natural chiral pool, both enantiopure forms of 7-azido-THIs are required.

Here, we report an efficient resolution of racemic 7-amino-THIs **1** with di-*O*-benzoyl tartaric acid (**2**):



Stereochemical analysis, synthetic transformations of enantiopure 7-amino-tetrahydroindazol-4-ones (*S*)-**1** and (*R*)-**1** into corresponding azides, and their further functionalization will be discussed.

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[1] Strakova, I.; Turks, M.; Strakovs, A. *Tetrahedron Lett.* **2009**, *50*, 3046-3049.