Molbank **2006**, M470 http://www.mdpi.net/molbank/

5,6,7,8-Tetrahydro-3-(1-methoxyiminobutyl)-1-methylsulfonylisoquinoline

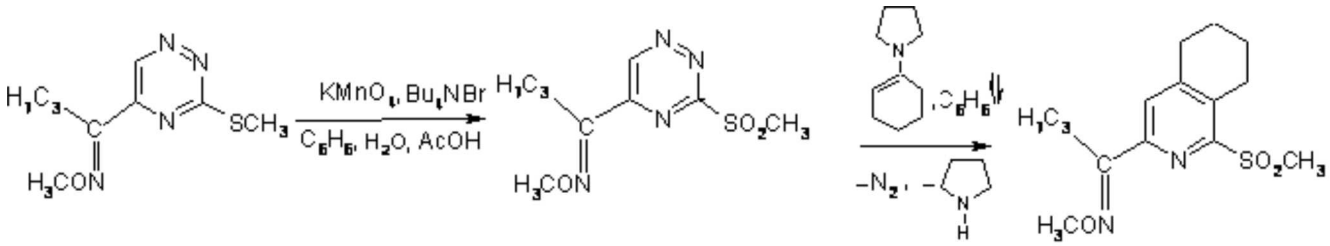
Teodozja Lipińska* and Ewa Olender

Department of Chemistry, University of Podlasie,
ul 3 Maja 54, PL-08 110 Siedlce, Poland
e-mail: tlip@ap.siedlce.pl

Received: 10 September 2005 / Accepted: 9 October 2005 / Published: 28 February 2006

Keywords: 5,6,7,8-tetrahydroisoquinoline, 1-heteroarylbutanone oxime methylether, methysulfon PTC-oxidation, aza-Diels-Alder reaction.

As part of research programme directed to the synthesis of novel heterocyclic compounds pharmacological interesting [1] via ring transformation of 1,2,4-triazine derivatives, we synthesized the title compounds **3** v two step process. Starting compounds, 5-(methoxyiminobutyl)-3-(methylsulfanyl)-1,2,4-triazine (**1**) [2] wa easily oxidized under PTC-conditions into the corresponding sulfone **2**. The latter compound, as reactiv azadiene [3], was subjected in crude form to [4+2]cycloaddition-retro cycloaddition with 1-pyrrolidin 1-cyclohexane as dienophile to give 5,6,7,8-Tetrahydro-3-(1-methoxyiminoethyl)-1-methylsulfonylisoquinolir (**3**) in 70% yield.



Preparation of 2:
A solution of $KMnO_4$ (474 mg, 3 mmol) in water 20 ml) was added to a solution of **1** (226 mg, 1 mmol) ar $Bu_4N^+Br^-$ (48 mg, 1.5 mmol) in a mixture of AcOH (1.8 ml, 30 mmol) and benzene (15 ml) during stirring ar cooling to 5-10°C. The reaction was continued at 10°C for 1-1.5 h, until complete oxidation process wa observed with monitoring by TLC ($CHCl_3$/acetone -50:1). A saturated solution of $Na_2S_2O_5$ for decoloring, the saturated solution of K_2CO_3 for neutralization were added. The organic layer was separated and water phas was extracted with benzene (3 x 20 ml). The combined organic layers were washed with water (2 x 20 ml) ar dried over $MgSO_4$. After evaporation of the solvents under reduced pressure to volume of 5 ml, the solutic was contained of pure product **2** (TLC monitoring) and was used for next step.

IR (KBr, ν, cm^{-1}): 3030 ($CH_{aromat.}$); 2975, 2850 (CH_3); 1665 (C=N); 1565, 1460, 1395 (aromat. ring); 133 1155 (SO_2); 1075 (C-O);

^{1}H-NMR ($CDCl_3$, 200 MHz); δ= 9.64 (s, 1 H, $CH_{aromat.}$); 4.20 (s, 3 H, CH_3O); 3.45 (s, 3H, CH_3SO_2); 2.90 (t *J*= 7.7 Hz, 2 H, H_2CC=N); 1.60 (m, 2 H, $\underline{H_2}C\underline{CH_2}C$=); 1.05 (t, *J*=7.4 Hz, 3 H, $\underline{H_3}C\underline{CH_2}$).

Preparation of 5,6,7,8-Tetrahydro-3-(1-methoxyiminobutyl)-1-methylsulfonylisoquinoline (3):
To the freshly obtained solution of **2** (1 mmol), was added 1-(N-pyrrolidine)cyclohexene (302 mg, 2 mmol

The reaction mixture was refluxed for 1h until the substrate **2** was disappeared (TLC monitorin $CHCl_3$/acetone-50:1). Removal of solvents under reduced pressure and purification of the residue by colum chromatography on silica gel (230-400 mesh, Merck type 60) using chloroform/hexane - 3:1 as eluent gave 21 mg (70 %) of 5,6,7,8-tetrahydro-3-(1-methyoxyiminobutyl)-1-methylsulfonylisoquinoline (**3**) as a white sol after recrystalization from mixture chloroforme/hexane 1:2.

Melting point: 84-85^{o}C

IR (KBr, ν, cm^{-1}): 3030 ($CH_{aromat.}$); 2975, 2875, 2855 (CH_3, CH_2); 1660 (C=N); 1550, 1460 (aromat. ring 1340, 1170 (SO_2); 1070 (CH_3O).

^{1}H-NMR ($CDCl_3$, 200 MHz): δ= 7.71 (s, 1 H, $CH_{aromat.}$); 3.95 (s, 3 H, CH_3O); 3.70 (s, 3 H, CH_3SO_2); 3.16 (*J*=5.5Hz, 2 H, C^8H_2); 2.83 (t, *J*=5.7 Hz, 2 H, C^5H_2); 2.64 (t, *J*=7.6 Hz, 2 H, CH_2C=N); 1.94-1.76 (m, 4 H $C^6H_2C^7H_2$); 1.61 (m, 2 H, $\underline{H_2C}CH_3$); 0.97 (t, *J*=7.5 Hz, 3H, $\underline{H_3C}CH_2$).

MS (EI), m/z (% rel. int.): 310 (100) [M^+]; 295 (13); 279 (35); 267 (13); 250 (15); 212 (25); 181 (33).

Elemental Analysis: Calculated for $C_{15}H_{22}N_2O_3S$: C, 58.04%; H, 7.14%; N, 9.03%. Found: C, 57.88%; H 7.20%; N, 8.90%.

References and notes:

1. For previous paper in this series, see: Lipińska T. *Tetrahedron Lett.* **2002**, *43*, 9565-9567.
2. Lipińska, T.; Branowska, D.; Rykowski, A. *Khim. Geterosikl. Soedin.* **1999**, 381-389; *Chem. Heterocyc Compd*
   (Engl. Transl.) **2001,** *37*, 231-236.
3. For a review on aza-DA-rDA reactions with extrusinon of small molecules see:Rickborn, B. in *Organ. Reactions,*
   Vol. 53, 224-627. Edited by Leo A. Paguette et.al., J. Wiley & Sons Inc. 1998..

Sample Availability: Available from MDPI.