

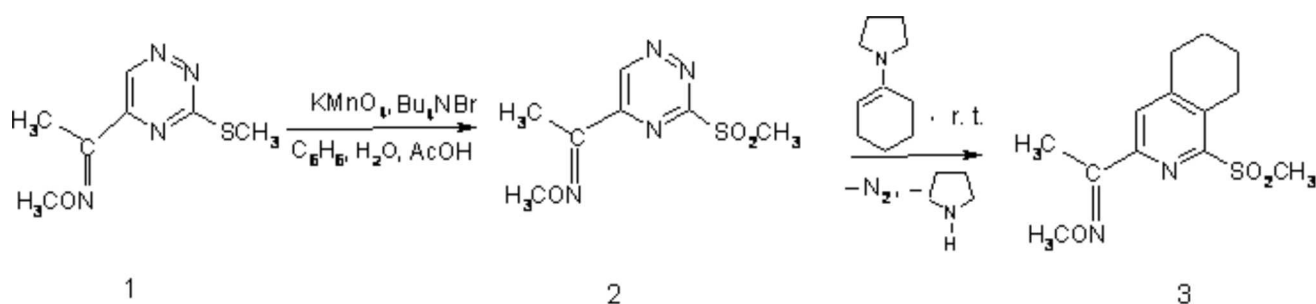
5,6,7,8-Tetrahydro-3-(1-methoxyiminoethyl)-1-methylsulfonylisoquinoline**Teodozja Lipińska* and Beata Iwańska**

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As part of research programme directed to the synthesis of novel heterocyclic compounds pharmacologically interesting [1] via ring transformation of 1,2,4-triazine derivatives, we synthesized the title compounds **3** via two step process. Starting compounds, 5-(methoxyiminoethyl)-3-(methylsulfonyl)-1,2,4-triazine (**1**) [2] was easily oxidized under PTC-conditions into the corresponding sulfone **2**. The latter compound, as reactive azadiene [3], was subjected in crude form to [4+2]cycloaddition/retro cycloaddition with 1-pyrrolidino-1-cyclohexene as dienophile to give 5,6,7,8-Tetrahydro-3-(1-methoxyiminoethyl)-1-methylsulfonylisoquinolin (**3**) in 83% 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) and $\text{Bu}_4\text{N}^+\text{Br}^-$ (48 mg, 1.5 mmol) in a mixture of AcOH (1.8 ml, 30 mmol) and benzene (15 ml) during stirring and cooling to 5–10°C. The reaction was continued at 10°C for 1–1.5 h, until complete oxidation process was observed with monitoring by TLC (CHCl_3 /acetone 50:1). A saturated solution of $\text{Na}_2\text{S}_2\text{O}_5$ for decoloring, the saturated solution of K_2CO_3 for neutralization were added. The organic layer was separated and water phase was extracted with benzene (3 x 20 ml). The combined organic layers were washed with water (2 x 20 ml) and dried over MgSO_4 . After evaporation of the solvents under reduced pressure to volume of 5 ml, the solution was contained of pure product **2** (TLC monitoring) and was used for next step.

IR (KBr, ν , cm^{-1}): 3025 ($\text{CH}_{\text{aromat.}}$), 2970, 2850 (CH_3); 1655 ($\text{C}=\text{N}$); 1555, 1465, 1395 (aromat. ring); 1340, 1180 (SO_2); 1070 ($\text{C}-\text{O}$).

^1H -NMR (CDCl_3 , 200 MHz): δ = 9.82 (s, 1 H, $\text{CH}_{\text{aromat.}}$); 4.26 (s, 3 H, CH_3O); 3.45 (s, 3H, CH_3SO_2); 2.43 (s, 3 H, $\text{H}_3\text{C}=\text{N}$).

Preparation of 5,6,7,8-Tetrahydro-3-(1-methoxyiminoethyl)-1-methylsulfonyl-isoquinoline (3):

To the solution of **2** (1 mmol) was added 1-(N-pyrrolidine)cyclohexene (302 mg, 2 mmol). Vigorously extrusion

of N₂ was observed. The reaction mixture was stirred for 5 h at room temperature, until the substrate **2** was disappeared (TLC monitoring: CHCl₃/acetone-50:1). Removal of solvents under reduced pressure and purification of the residue by column chromatography on silica gel (230-400 mesh, Merck type 60) using chloroform as eluent gave 235 mg (83 %) of 5,6,7,8-tetrahydro-3-(1-methoxyiminoethyl)-1-methylsulfonylisoquinoline (**3**) as a white solid after recrystallization from mixture chloroform/hexane 1:3.

Melting Point: 126-127°C

IR (KBr, ν , cm⁻¹): 3030 (CH_{aromat.}); 2975, 2875, 2790 (CH₃ and CH₂); 1660 (C=N); 1540, 1440 (aromat. ring); 1340, 1150 (SO₂); 1060 (CH₃O).

¹H-NMR (CDCl₃, 200 MHz): δ = 7.81 (s, 1 H, CH_{aromat.}); 4.03 (s, 3 H, CH₃O); 4.00 (s, 3 H, CH₃SO₂); 3.25 (t, J =5.5 Hz, 2 H, C⁸H₂); 2.85 (t, J =5.7 Hz, 2 H, C⁵H₂); 2.24 (s, 3 H, CH₃C=N); 1.94-1.76 (m, 4 H, C⁶H₂C⁷H₂).

MS (EI), m/z (% rel. int.): 282 (30) [M⁺], 251 (15), 242 (11), 212 (13), 181(46), 170 (14), 170 (15), 151 (15), 149 (15), 137 (18), 135 (18), 125 (22), 123 (25), 111 (48), 109 (45), 97 (64), 95 (62), 85 (48), 83 (100), 81 (51), 71 (55), 69 (54).

HR-MS (EI): Calculated for C₁₃H₁₈N₂O₃S: 282.1038; Found: 282.1038.

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. Heterocycl. Compd (Engl. Transl.)* **2001**, *37*, 231-236.
3. For a review on aza-DA-rDA reactions with extrusion of small molecules see: Rickborn, B. in *Organic Reactions*, Vol. 53, 224-627. Edited by Leo A. Paguette et.al., J. Wiley & Sons Inc. 1998.

Sample Availability: Available from MDPI.

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