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A Rapid Synthesis of the 3-Methyl-5-(Methylsulfanyl)-1-Phenyl-1*H*-Pyrazolo[4,3-*e*]-[1,2,4]Triazine from Phenylhydrazone of 5-Acetyl-3-(Methylsulfanyl)-1,2,4-Triazine under Microwave Irradiation

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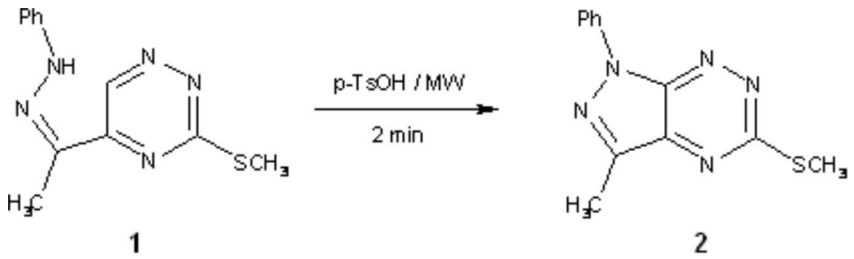
The combination of microwave irradiation and solvent-free conditions leads to enhanced reaction rates, higher yields of pure products, easier work-up and several advantages of the eco-friendly approach in the framework of green-chemistry [1-2]. Here we report a new route for the preparation of 1*H*-pyrazolo[4,3-*e*][1,2,4]triazine derivative **2** starting from phenylhydrazone of 5-acetyl-3-(methylsulfanyl)-1,2,4-triazine (**1**) [3] and p-toluenesulfonic acid (p-TsOH) under microwave irradiation.



The mixture of the phenylhydrazone **1** (259 mg, 1mmol) and p-toluenesulfonic acid (344 mg, 2 mmol) was heated in quartz container under microwave irradiation [4]. After 2 min the product was eluted with $CHCl_3$. The crude product **2** was purified by column chromatography on silica gel (Merck, 230-400 mesh) using chloroform as eluent. Yield of pure 3-methyl-5-(methylsulfanyl)-1-phenyl-1*H*-pyrazolo[4,3-*e*][1,2,4]triazine (**2**) – 149 mg (0.58 mmol, 58%).

Melting Point: 105 ^{o}C.

^{1}H-NMR (200 MHz, $CDCl_3$): δ= 2.73 (s, 3H); 2.77 (s, 3H); 7.29-7.40 (m, 1H); 7.50-7.61 (m, 2H); 8.31-8.38 (m, 2H).

IR (KBr, cm^{-1}): 2920, 1590, 1500, 1390, 760.

MS (EI, 70eV; *m/z*, *%*): 257 (43) [M^{+}]; 232 (3); 216 (22); 93 (41); 77 (100).

Elemental Analysis: Calculated for $C_{12}H_{11}N_5S$: C, 56.03%; H, 4.28%; N, 27.23%. Found: C, 55.67%; H, 4.13%; N, 27.05%.

References:

1.Perreux, L.; Loupy, A. *Tetrahedron* **2001**, 57, 9199.
2.Varma, R.S. *Green Chem.* **1999**, 1, 43.
3.Rykowski, A.; Mojzych, M.; Karczmarzyk, K. *Heterocycles*, **2000**, 53, 2175.
4.The Prolabo microwave synthesizer SYNTHEWAVE 402 was used with feedback temperature control.

Sample Availability: Available from MDPI.

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