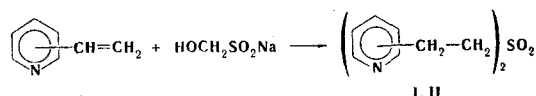


PYRIDYLETHYLATION OF DERIVATIVES OF
SULFINIC AND THIOSULFURIC ACIDS

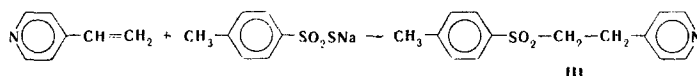
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UDC 547.822.6

We have previously investigated some chemical properties of aryl sulfones [1]. In connection with publications concerning the addition of oxygen compounds of sulfur to activated double bonds [2], we decided to publish data on the reaction of sodium hydroxymethanesulfinate with 2- and 4-vinylpyridines. We were able to carry out the reaction in the presence of sodium monophosphate as a buffer. Instead of the expected β -pyridylethyl hydroxymethyl sulfone, we obtained bis(β -pyridylethyl) sulfones (I, II):



Sulfones III rather than substituted esters of thiosulfuric acids were also obtained by pyridylethylation of arenethiosulfonates:



The structure of sulfone III was proved by alternative synthesis by pyridylethylation of p-toluenesulfonic acid.

EXPERIMENTAL

Bis[β -(4-pyridyl)ethyl] Sulfone (I). A mixture of 7.7 g (0.05 mole) of sodium hydroxymethanesulfinate, 6.3 g (0.06 mole) of 4-vinylpyridine, and 7.5 g of sodium monophosphate in 100 ml of water was held at room temperature for 3 days, after which it was extracted with chloroform. Removal of the solvent by distillation gave 9.3 g (69%) of a product with mp 98–99°. Found: C 61.0; H 5.9; S 11.7%. $\text{C}_{14}\text{H}_{10}\text{N}_2\text{O}_2\text{S}$. Calculated: C 60.8; H 5.8; S 11.6%.

Bis[β -(2-pyridyl)ethyl] Sulfone (II). This compound was similarly obtained in 60% yield and had mp 69–70°. Found: C 60.7; H 5.8; S 11.6%. $\text{C}_{14}\text{H}_{10}\text{N}_2\text{O}_2\text{S}$. Calculated: C 60.8; H 5.8; S 11.6%.

p-Tolyl β -(4-Pyridyl)ethyl Sulfone (III). A solution of 4.5 g of sodium monophosphate in 25 ml of water was added dropwise to a mixture of 5.25 g (25 mmole) of sodium p-toluenethiosulfonate in 25 ml of water and 2.6 g (25 mmole) of 4-vinylpyridine. After 30 min, the mixture was extracted with chloroform. The chloroform was removed by distillation to give 1.8 g (69%) of a product with mp 96°. The hydrochloride had mp 190–191° (from absolute alcohol). Found: C 56.7; H 5.5%. $\text{C}_{14}\text{H}_{16}\text{ClNO}_2\text{S}$. Calculated: C 56.4; H 5.4%.

LITERATURE CITED

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2. R. Kerber and J. Starnick, *Chem. Ber.*, **104**, 2035 (1971).

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