	R_f in systems*				UV spectrum			
					0.1 *N* HCl		0.5 *N* NaOH	
	1	*2*	*3*	*4*	λ_{max}, nm	ε	λ_{max}, nm	ε
II	0.70	0.54	0.24	0.12	264	16 800	260	13 200
III	0.80	0.70	0.72	0.45	252	18 400	279	14 000

*Systems: 1) isopropanol–water–concentrated hydrochloric acid (65.0:18.4:16.4); 2) ethyl acetate–98% formic acid–water (70:20:10); 3) tert-butanol–methyl ethyl ketone–water–98% formic acid (44:44:11:0.26); 4) n-butanol–2 N aqueous ammonia–ethanol (20:5:2).

no inhibiting activity on the growth of the tumors in either males or females. Compound II inhibited the growth of transplated Walker's carcinosarcoma in the rat to the extent of 37% after ten doses of 60 mg/kg of the substance and to the extent of 57% after a similar administration of 120 mg/kg. The inhibiting effect was shown similarly in males and females. Compound II had no clear inhibiting effect on the growth of Pleace's lymphosarcoma. The LD_{50} in white mice with intraperitoneal administration was 600 mg/kg for compound II and 300 mg/kg for compound III.

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1 April 1967

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FORMATION OF 5-METHYL-4-PHENYL-1, 2-DITHIOLEN-3-THIONE BY THE REACTION OF 2-PHENYLBUTANE WITH ELEMENTARY SULFUR

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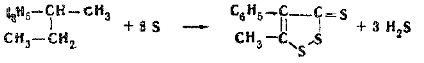
Khimiya Geterotsiklicheskikh Soedinenii, Vol. 3, No. 6, p. 1133, 1967

UDC 547.738+546.22-121+547.734

Previously, one of us has shown [1, 2] that the reaction of sulfur with 1- and 2-phenylbutanes leads to the formation of 2- and 3-phenylthiophenes, respectively, with yields of about 5%. The action of sulfur on 2-methyl-4-phenylbutane has given 4-methyl-2-phenylthiophene (yield about 12%) [3]. On the other hand, the catalytic reaction of sulfur with 1- and 2-phenylpropanes leads to the formation of 5- and 4-phenyl-1, 2-dithiolen-3-thiones, respectively [4, 5].

Continuing our investigation of the reaction of sulfur with aryl-substituted butanes and higher arylalkanes, we have shown that when it is carried out catalytically the corresponding aryl-1, 2-dithiolen-3-thiones are formed in many cases in addition to arylthiophenes. Thus, for example, when 185.0 g (1.375 mole) of 2-phenylbutane was heated with 88.0 g (2.75 g-atom) of sulfur in the presence of 0.7 g (0.016 mole-%) of mercuriacetamide at 180°–200° C for 30 hr, 5.5 g (5.6% of theoretical, calculated on the 2-phenyl-butane that had reacted) of 3-phenylthiophene (I) and 1.5 g (1.1%) of 5-methyl-4-phenyl-1, 2-dithiolen-3-thione (II) were isolated, the latter having been formed in the following way.



II

To isolate the reaction products, the unchanged 2-phenylbutane was distilled off (102 g or 0.76 mole), the free sulfur was eliminated from the residue by means of dimethylformamide, and it was distilled with superheated steam. The resulting reddish crystals were separated chromatographically on a column of silica gel. The eluant was a mixture of petroleum ether and benzene (5:1). From the appropriate fraction of the eluate were obtained red plate-like crystals with mp 91°–92° C (from acetic acid), which corresponds to literature data [6] for II (mp 92° C). Found, %: C 53.40; H 4.00; S 42.64. Calculated for $C_{10}H_8S_3$, %: C 53.53; H 3.59; S 42.88.

Similarly, I was isolated with mp 91°–92° C (literature data [2], mp 91.5°–92° C). This substance was shown to be 3-phenylthiophene by a mixed melting point.

By modifying the reaction conditions (for example, by the dropwise addition of 2-phenylbutane containing 5 mole-% of morpholine into an excess of sulfur heated to 200°–210° C), the yield of I can be raised to 10—15%.

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26 June 1967

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