CATALYTIC SULFURATION OF 1,2-DIARYL-, 2-NAPHTHYL-, AND 2-QUINOLYLPROPANES

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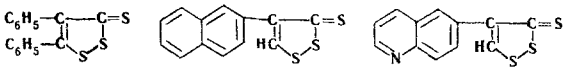
The catalytic reaction of sulfur with 1- and 2-arylpropanes is a convenient method for the preparation of 4- and 5-aryl-1,2-dithiol-3-thiones [1-3]. We have shown that this reaction is general in character and can be extended to 1,2-diarylpropanes, 2-arylpropanes in which the aromatic radical contains condensed rings, and also to propane derivatives that contain a heterocyclic substituent. It is realized in o-dichlorobenzene at 180-200°C in the presence of 0.2 mole % of catalyst. Hence, for example, the reaction of sulfur with 1,2-diphenylpropane [4], catalyzed by mercaptobenzothiazole, leads to 4,5-diphenyl-1,2-dithiol-3-thione (I). Red, plate-like crystals were obtained in 27.4% yield and had mp 160° (160.5° [5]). Under similar conditions, but with mercury acetamide as the catalyst, 2-(2'-naphthyl)propane [6] is converted to the previously unknown 4-(2'-naphthyl)-1,2-dithiol-3-thione (II). Fine, orange crystals were obtained in 56.5% yield and had mp 192.5°. The previously unknown, orange, finely crystalline 4-(6'-quinolyl)-1,2-dithiol-3-thione (III) with mp 175-176° was formed in 49.3% yield by the sulfuration of 6-isopropylquinoline in the presence of diphenylguanidine as the catalyst.



I II III

The results of the analysis of I-III for C, H, and S and their IR spectra are in good agreement with the formulas presented above.

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