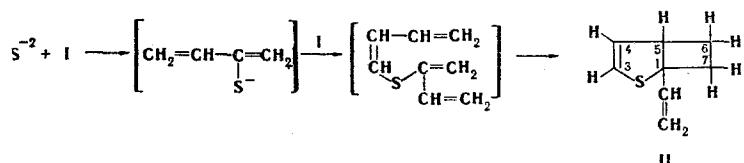


ONE-STEP SYNTHESIS OF 1-VINYL-2-THIABICYCLO[3.2.0]HEPT-3-ENE
FROM VINYLACETYLENE AND HYDROGEN SULFIDE

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UDC 547.736.07:543.422.25.4

In a study of the reaction of vinylacetylene (I) with hydrogen sulfide in alkaline aqueous organic media we observed that in this case, in addition to the expected addition leading to di(1,3-butadien-1-yl)sulfide, there is also a previously unknown reaction to form 1-vinyl-2-thiabicyclo[3.2.0]hept-3-ene (II) [bp 85° (20 mm), n_D^{20} 1.5415; the results of elementary analysis for C, H, and S were in agreement with the calculated values, and the yield was 26%], apparently via the scheme



PMR spectrum, δ , ppm (in CCl_4): 6.11 (q, 3-H), 5.50 (q, 4-H), 3.45 (m, 5-H); $J_{34} = 6$ Hz, $J_{35} = 1.4$ Hz, $J_{45} = 3$ Hz; 2.10-2.60 (m, 6- CH_2 , 7- CH_2), 6.14 (q, 1-CH); 5.11 and 5.21 (2q, 1- CH_2); $J_{\text{vic}} = 10.2$ and 17.2 Hz, and $J_{\text{gem}} = 1.1$ Hz. The ^{13}C NMR spectrum (25.2 MHz, TMS, 25°C, $^{13}\text{C}-\{^1\text{H}\}$ noise decoupling) contains eight signals (δ in parts per million and number of directly attached protons found by the incomplete decoupling with protons): $C_{(1)} 61.85, 0$; $C_{(3)} 126.67, 1$; $C_{(4)} 123.78, 1$; $C_{(5)} 55.44, 1$; $C_{(6)} 27.13, 2$; $C_{(7)} 35.19, 2$; $C_{(\alpha)} 140.05, 1$; $C_{(\beta)} 112.84, 2$. The assignment was made on the basis of experiments on selective double $^{13}\text{C}-\{^1\text{H}\}$ NMR spectroscopy.

Irkutsk Institute of Organic Chemistry, Siberian Branch, Academy of Sciences of the USSR. Translated from Khimiya Geterotsiklicheskikh Soedinenii, No. 2, p. 285, February, 1976. Original article submitted July 15, 1975.

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