# AN UNEXPECTED REACTION OF 1'-ALLYL-1',4'-DIHYDRO-2,3'-BIQUINOLYL WITH SULFUR

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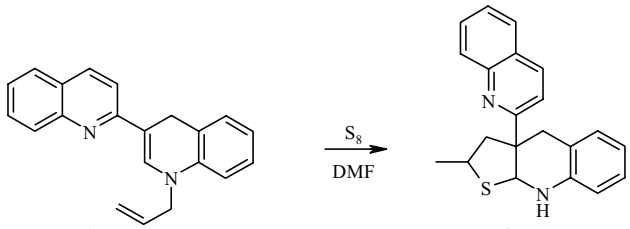
**Keywords:** 1',4'-dihydro-2,3'-biquinolyl, sulfur, 3a-(2-quinolyl)-2,3,3a,4,9,9a-hexahydrothieno[2,3-*b*]-quinolines, thiolation.

Previously [1] we have developed a series of methods for the synthesis of 1'-alkyl-1',4'-dihydro-2,3'-biquinolyls which permitted us to study their properties. In this note we report the reaction of 1'-allyl-1',4'-dihydro-2,3'-biquinolyl (**1**) with elemental sulfur.

The reaction of 6 mmol of compound **1** with 12 mmol of elemental sulfur in boiling DMF for 3 h with subsequent extraction with benzene (3 × 50 ml) and column chromatography (silica gel L 40/100, eluent benzene–petroleum ether, 10:1) gave 2-methyl-3a-(2-quinolyl)-2,3,3a,4,9,9a-hexahydrothieno[2,3-*b*]quinoline (**2**). Investigation of the mechanism of this reaction is currently in progress.




**1** **2**

**2-Methyl-3a-(2-quinolyl)-2,3,3a,4,9,9a-hexahydrothieno[2,3-*b*]quinoline (2).** Yield 0.8 g (40%); mp 106-108°C (ethanol). $R_f$ 0.91 (Silufol UV-254, 10:1 benzene–petroleum ether). IR spectrum (KBr disks), ν, $cm^{-1}$: 3390 (NH). $^1$H NMR spectrum (200 MHz, acetone-$d_6$), δ, ppm, *J* (Hz): 1.35 (3H, d, *J* = 6.41, Me); 2.44 (1H, dd, $J_{gem}$ = 12.80, $J_{3Ha,2}$ = 10.29, 3-C$\underline{H}_a$H$_b$); 2.59 (2H, dd, $J_{gem}$ = 12.80, $J_{3Hb,2}$ = 6.40, 4-C$\underline{H}_a$H$_b$); 3.32 (2H, dd, $J_{gem}$ = 16.65, $J_{4Ha,9a}$ = 1.1, 4-$\underline{H}_a$H$_b$); 3.57 (1H, d, $J_{gem}$ = 16.65, 4-CH$_a\underline{H}_b$); 3.91 (1H, m, 2-H); 5.78 (1H, br. d, $J_{NH,9a}$ = 4.51, NH); 6.21 (1H, dd, $J_{NH,9a}$ = 4.51, $J_{4Ha,9a}$ = 1.1, 9a-H); 6.48 (1H, d, $J_{7,8}$ = 8.11, 8-H); 6.56 (1H, dd, $J_{5,6}$ = 7.97, $J_{6,7}$ = 7.31, 6-H); 6.86 (1H, dd, $J_{6,7}$ = 7.31, $J_{7,8}$ = 8.11, 7-H); 7.06 (1H, d, $J_{5,6}$ =7.97, 5-H); 7.51 (1H, dd, $J_{5',6'}$ = 8.09, $J_{6',7'}$ = 7.54, 6'-H); 7.58 (1H, d, $J_{3',4'}$ = 8.53, 3'-H); 7.71 (1H, dd, $J_{6',7'}$ = 7.54, $J_{7',8'}$ = 8.39, 7'-H); 7.84 (1H, d, $J_{5',6'}$ = 8.09, 5'-H); 7.98 (1H, d, $J_{7',8'}$ = 8.39, 8'-H); 8.15 (1H, d, $J_{3',4'}$ = 8.53, 4'-H). Mass spectrum: *m/z* (70 eV): 390 [M - $C_3H_6$] (98), 289 (100), 257 (40). Found, %: C 75.98; H 6.01; N 8.32. $C_{21}H_{20}N_2S$. Calculated, %: C 75.87; H 6.06; N 8.43.

## REFERENCES

1. A. V. Aksenov, D. V. Moiseev, I. V. Borovlev, and O. N. Nadein, *Khim. Geterotsikl. Soedin.,* 1084 (2000).

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 0009-3122/01/3701-0124$25.00