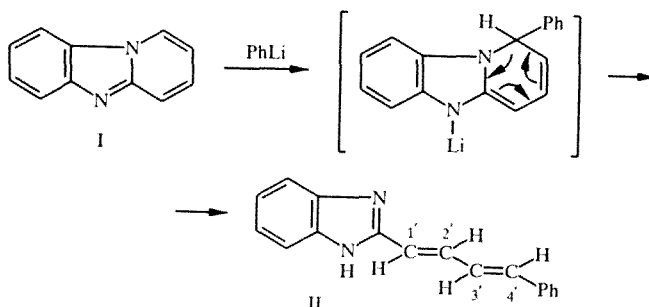


## LETTERS TO THE EDITOR

### CLEAVAGE OF PYRIDO[1,2-*a*]BENZIMIDAZOLE BY THE ACTION OF PHENYLITHIUM

A. V. Varlamov, N. S. Prostakov, A. É. Aliev,  
I. V. Shendrik, and A. P. Krapivko

Limited information is available on the reactivity of pyrido[1,2-*a*]benzimidazole (I) though there have been no reports on reactions proceeding in the nitrogen-containing six-membered ring of this compound. We have found that cleavage of the pyridine ring occurs upon the action of phenyllithium on I in toluene at reflux. The reaction mixture yielded about 5% *S*-trans-2-(4-phenyl-1,3-butadien-1-yl)imidazole (II), which probably is formed as a result of cleavage of the C<sub>1</sub>—N<sub>9b</sub> bond in the initial adduct, apparently 1-phenyl-1,6-dihydropyrido[1,2-*a*]benzimidazoline-2, accompanied by aromatization of the five-membered ring.



In addition to II, the trimer and tetramer of this product were also isolated in ~38% yield from the reaction mixture.

**S-trans-2-(4-Phenyl-1,3-butadien-1-yl)imidazole (II, C<sub>17</sub>H<sub>14</sub>N<sub>2</sub>)** was obtained as light yellow crystals, mp 246°C (from ether), *R<sub>f</sub>* 0.4 (silufol, ether). PMR spectrum in DMSO-*d*<sub>6</sub> (400 MHz) <sup>1</sup>H<sup>1</sup>H homonuclear correlation COSY spectra were used in signal assignments and elucidation of the long-distance coupling constants with time delays  $\tau$  0.1 and 0.5 sec: 6.87 (*J*<sub>4'3'</sub> = 15.6 Hz, 4'-H), 7.23 (*J*<sub>3'2'</sub> = 11.0 Hz, 3'-H), 7.45 (*J*<sub>1'2'</sub> = 15.6 Hz, 2'-H), 6.75 (1'-H), 7.51 (4-H, 7-H), 7.16 (5-H, 6-H), 7.58 (*o*-H), 7.37 (*m*-H), 7.20 (*p*-H). *M*<sup>+</sup> 246.