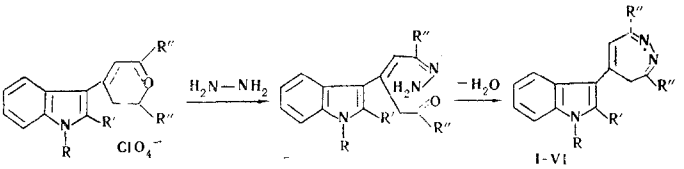
5-INDOLYL-4H-1,2-DIAZEPINES FROM INDOLYLPYRYLIUM SALTS

G. I. Zhungietu, I. V. Shantsevoi, and D. D. Buburuz

UDC 547.753'812'892

We have found that 5-(3-indolyl)-4H-1,2-diazepines, which are high-melting, pale-yellow compounds (Table 1), are formed by refluxing 4-(3-indolyl)pyrylium perchlorates with hydrazine in alcohol (30 min). The IR spectra of the compounds do not contain carbonyl and secondary amino group absorptions, but do contain a band at 1595 cm^{-1} (C=C). The maxima in the UV spectra appear in the same regions as in the case of 4-(3-indolyl)pyridines.

The initially formed monohydrazones probably do not cyclize to indolylpyrazolines because of deactivation of the C=C bond as a result of conjugation with the indole ring. The preparation of 3,5,7-tri-



I R=H, R′=CH_3, R″=C_6H_5; II R=H, R′=CH_3, R″=p-$CH_3C_6H_4$; III R=CH_3, R′=H, R″=C_6H_5; IV R=$C_6H_5CH_2$, R′=H, R″=p-$CH_3C_6H_4$; V R=CH_3, R′=H, R″=p-$CH_3C_6H_4$; VI R=$C_6H_5CH_2$, R′=H, R″=C_6H_5

TABLE 1. 5-(3-Indolyl)-4H-1,2-diazepines[a]

Compound	mp, °C[b]	IR spectrum,[c] ν, cm^{-1}	UV spectrum,[d] λ_{max}, nm (log ε)	Empirical formula	Yield, %
I[e]	274	1540, 1575, 1590	283 (4,41), 360 (4,04)	$C_{26}H_{21}N_3$	70
II	255	1540, 1570, 1590	290 (4,46), 350 (4,10)	$C_{28}H_{25}N_3$	64
III	235	1530, 1595	225 (4,41), 275 (4,35), 362 (4,11)	$C_{26}H_{21}N_3$	80
IV	229	1530, 1570, 1595	229 (4,37), 279 (4,30), 359 (4,04)	$C_{34}H_{29}N_3$	80
V	225	1535, 1570, 1590	226 (4,51), 295 (4,48), 360 (4,20)	$C_{28}H_{25}N_3$	90
VI[e]	219	1530, 1595	215 (4,34), 295 (4,30), 365 (4,07)	$C_{32}H_{25}N_3$	67

[a]Satisfactory analyses for nitrogen were obtained for all of the compounds.
[b]From benzene.
[c]In mineral oil.
[d]In alcohol.
[e]These compounds were also obtained when the reaction was carried out in acetic acid.

Institute of Chemistry, Academy of Sciences of the Moldavian SSR, Kishinev. Translated from Khimiya Geterotsiklicheskikh Soedinenii, No. 2, pp. 281-282, February, 1971. Original article submitted July 23, 1970.

phenyl-4H-1,2-diazepine from a 2,4,6-triphenylpyrylium salt [1] is described as an example of such a transformation. It is interesting that 2-methylpyrylium perchlorates form pyrazoles in the process [2].

LITERATURE CITED

1. A. T. Balaban, Tetrahedron, 24, 5059 (1968).
2. G. N. Dorofeenko, A. N. Narkevich, and Yu. A. Zhdanov, Khim. Geterotsikl. Soedin., 1130 (1967).