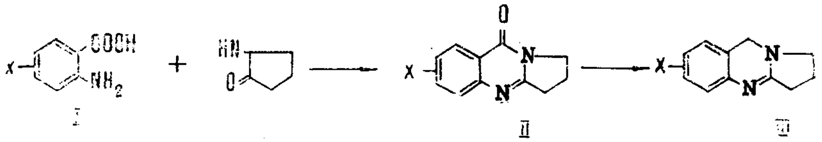
SYNTHESIS OF DEOXYPEGANINE AND ITS DERIVATIVES

Kh. Shakhidoyatov, A. Irisbaev,
and Ch. Sh. Kadyrov

UDC 547.944/945+547.856.1

Deoxypeganine and deoxyvasicinone have been isolated from the plant Peganum harmala together with other alkaloids [1] and have been synthesized in several stages with low yields [2, 3]. We have developed a simple method for synthesizing deoxypeganine and its derivatives (III) by condensing anthranilic acid and its substituted derivatives (I) with pyrrolidone and reducing the deoxyvasicinone derivatives formed (II) with zinc in hydrochloric acid. The yields and properties of the products obtained are given in Table 1.



X = H; 6 –Cl, –Br, –I, – NO$_2$, –COOH, – NH$_2$, 7 – NO$_2$, – NH$_2$

The structure of the compounds obtained was shown on the basis of elementary analysis and IR and mass spectra. The IR spectra of (IIa-i) have the absorption bands of an amide carbonyl group in the 1680-1705- and 1650-1670-cm^{-1} regions, which are characteristic for 3,4-dihydroquinazolin-4-ones; in compounds (IIIa-i) the absorption bands at 1680-1705 cm^{-1} are absent, which shows the reduction of the amide carbonyl.

The mass spectra of these compounds are characterized by the presence of intense M$^+$ and (M – 1)$^+$ ions (100% and 30-60%).

TABLE 1

Reaction product	X	Yield, %	mp, °C (solvent for recrystallization)	Reaction product	X	Yield, %‡	mp, °C (solvent for recrystallization)
II*a	H	70	110–111 (hexane)	II h	6–NH$_2$	50	252–254 (ethanol)
II b	6–Br	77	157–158 (aqueous ethan)	II i	7–NH$_2$	56	245–247 (ethyl acetate)
II c	6–Cl	70	178–179 (aqueous ethan.)	IIIa †	H	50	86–87 (hexane)
II d	6–I,	72	148–149 (aqueous ethan)	III b	6–Br	74	170–172 (ligroin))
II e	6–NO$_2$	60	187–188 (methanol)	IIIc	6–Cl	75	168–170 (ligroin)
II f	7–NO$_2$	60	199–200 (methanol)	IIIh	6–NH$_2$	46	210–212 (hexane)
II g	6–CO$_2$H	44	245–247 (water)	III i	7–NH$_2$	53	183–185 (hexane)

*According to the literature, mp 110°C [2].

†According to the literature, mp 85-87°C [1].

‡The yields of (IIIa-i) were calculated on the (IIa-i).

Institute of Chemistry of Plant Substances, Academy of Sciences of the Uzbek SSR. Translated from Khimiya Prirodnykh Soedinenii, No. 5, pp. 681-682, September-October, 1974. Original article submitted April 15, 1974.

LITERATURE CITED

1. Kh. N. Khashimov, M. V. Telezhenetskaya, and S. Yu. Yunusov, Khim. Prirodn. Soedin., 456 (1969).
2. A. Chattergee and M. Junguly, Phytochem., 7, 307 (1968).
3. E. Späth and N. Platzer, Ber., 68, 2221 (1935).