

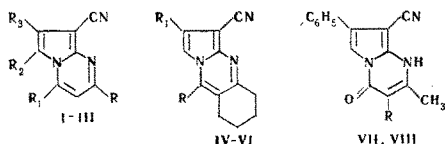
SYNTHESIS OF DERIVATIVES OF PYRROLO[1,2-*a*]PYRIMIDINE

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*Khimiya Geterotsiklicheskikh Soedinenii*, Vol. 6, No. 3, p. 428, 1970

UDC 547.741'853.07:543.422.4

Continuing investigations in the field of the synthesis of condensed heterocyclic systems containing pyrrole and indole fragments [1-3], we have condensed 2-aminopyrrole derivatives with various 1,3-dicarbonyl compounds. The reaction took place at the boil in solutions in pyridine or acetic acid, and also without a solvent at 150-160° C, forming in a single stage derivatives of pyrrolo[1,2-*a*]pyrimidine (I-III) and pyrrolo[2,1-*b*]tetrahydroquinazoline (IV-VI). The condensation of 2-aminopyrrole with acetoacetic and substituted acetoacetic esters led to 4-oxo derivatives of pyrrolo[1,2-*a*]pyrimidine (VII and VIII).



According to their IR spectra, compounds VII and VIII exist in the oxo form ( $\nu_{C=O}$  1690  $\text{cm}^{-1}$ ).

**2,4,6,7-Tetramethyl-8-cyanopyrrolo[1,2-*a*]pyrimidine (I).** Yield 63%, mp 210-211° C (from acetone). Found, %: C 72.02; H 6.28; N 21.11. Calculated for  $\text{C}_{12}\text{H}_{13}\text{N}_3$ , %: C 72.33; H 6.56; N 21.09.

**8-Cyano-2,4-dimethyl-7-phenylpyrrolo[1,2-*a*]pyrimidine (II).** Yield 73.6%, mp 248-249° C (from acetone). Found, %: C 77.63; H 5.25; N 16.87. Calculated for  $\text{C}_{16}\text{H}_{13}\text{N}_3$ , %: C 77.74; H 5.29; N 16.99.

**8-Cyano-2-methyl-4,7-diphenylpyrrolo[1,2-*a*]pyrimidine (III).** Yield 41%, mp 182-183° C (from acetone). Found, %: C 81.60; H 5.08; N 13.47. Calculated for  $\text{C}_{21}\text{H}_{15}\text{N}_3$ , %: C 81.53; H 4.88; N 13.58.

**3-Cyano-2-phenylpyrrolo[2,1-*b*]tetrahydroquinazoline (IV).** Yield 74%, mp 243-244° C (from acetone). Found, %: C 79.00; H 5.57; N 15.49. Calculated for  $\text{C}_{18}\text{H}_{15}\text{N}_3$ , %: C 79.09; H 5.53; N 15.37.

**3-Cyano-9-methyl-2-phenylpyrrolo[2,1-*b*]tetrahydroquinazoline (V).** Yield 64.3%. Mp 219-220° C (from dimethylformamide). Found, %: C 79.61; H 5.99; N 14.34. Calculated for  $\text{C}_{19}\text{H}_{17}\text{N}_3$ , %: C 79.41; H 5.96; N 14.62.

**3-Cyano-9-ethyl-2-phenylpyrrolo[2,1-*b*]tetrahydroquinazoline (VI).** Yield 39.4%, mp 196-197° C (from dimethylformamide). Found, %: C 79.68; H 6.30; N 13.92. Calculated for  $\text{C}_{20}\text{H}_{19}\text{N}_3$ , %: C 79.70; H 6.35; N 13.90.

**8-Cyano-2-methyl-4-oxo-7-phenyl[1,2-*a*]pyrimidine (VII).** Yield 57.9%, mp 348-349° C (decomp, in a sealed capillary, from dimethylformamide). Found, %: C 72.40; H 4.46; N 16.71. Calculated for  $\text{C}_{15}\text{H}_{11}\text{N}_3\text{O}$ , %: C 72.27; H 4.44; N 16.85.

**8-Cyano-3-ethyl-2-methyl-4-oxo-7-phenylpyrrolo[1,2-*a*]pyrimidine (VIII).** Yield 61.7%, mp 313.5-314.5° C (decomp, from acetone). Found, %: C 73.75; H 5.58; N 15.45. Calculated for  $\text{C}_{17}\text{H}_{15}\text{N}_3\text{O}$ , %: C 73.62; H 5.45; N 15.15.

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25 June 1969

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