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Synthesis of Some Schiff Bases

Bhupendra N. Ghose

Chemistry Department, Bayero University, P.M.B. 3011,
Kano, Nigeria

Six new Schiff bases having the ONNO donor system have been synthesized from the condensation of biacetyl monoxime, benzil, *o*-vanillin, 9,10-phenanthrenequinone, ethanalamine, 1,3-diaminopropan-2-ol, and ethylenediamine. Their characterization has been based on their physical, analytical, and spectral data.

The amine was added to the stirred solution of the ketone in dry benzene at room temperature. The reaction mixture was then boiled under reflux for 1 h. The water formed in the reaction mixture was then distilled off azeotropically with benzene. Evaporation of the remaining solvents at reduced pressure gave the desired Schiff bases in good yields. Their physical, analytical, and spectral data are included in Tables I and II.

Table I. Physical Data^a

Schiff base	formula	yield, %	color	mp, °C
1 B-ENOL-H ₂	C ₁₈ H ₂₀ N ₂ O ₂	80	colorless	oil
2 BAM-ENOL-H ₂	C ₆ H ₁₁ N ₂ O ₂	77	cream	112
3 PQ-ENOL-H ₂	C ₁₈ H ₁₈ N ₂ O ₂	60	yellow	250
4 BB-EN	C ₃₂ H ₂₈ N ₄	84	orange-yellow	154
5 <i>o</i> -VAN-EN-H ₂	C ₁₈ H ₂₀ N ₂ O ₄	80	dark yellow	165
6 <i>o</i> -VAN-DAP-H ₃	C ₁₉ H ₂₂ N ₂ O ₅	73	dark yellow	125

^a B-ENOL-H₂ = Schiff base from benzil and ethanolamine. BAM-ENOL-H₂ = Schiff base from biacetyl monoxime and ethanalamine. PQ-ENOL-H₂ = Schiff base from 9,10-phenanthrenequinone and ethanalamine. BB-EN = Schiff base from benzil and ethylenediamine. *o*-VAN-EN-H₂ = Schiff base from *o*-vanillin and ethylenediamine. *o*-VAN-DAP-H₃ = Schiff base from *o*-vanillin and 1,3-diaminopropan-2-ol.

Registry No. 1, 67414-71-5; 2, 88635-65-8; 3, 84838-94-8; 4, 79403-78-4; 5, 41349-57-9; 6, 88635-66-9; benzil, 134-81-6; biacetyl monoxime, 57-71-8; 9,10-phenanthrenequinone, 84-11-7; *o*-vanillin, 148-53-8; 2-aminoethanol, 141-43-5; 1,2-ethanediamine, 107-15-3; 1,3-diamino-2-propanol, 616-29-5.

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Table II. Spectral Data

Schiff base	IR (Nujol mull), cm ⁻¹			NMR (CDCl ₃) ^a			UV (CHCl ₃), nm
	$\nu(\text{OH})$	$\nu(\text{C}=\text{N})$	$\delta(\text{Ph/CH}_3)$	$\delta(-\text{N}-\text{CH}_2-)$	$\delta(-\text{CH}_2-\text{O})$	$\delta(-\text{OH})$	
1	3390	1630	6.80-7.12 m	2.80 t	3.60 t	7.20 s, b	220 (680), 260 (700), 305 (1700)
2	3410	1620	1.46, 1.90 d	2.86	3.70 t	7.60 s, b ($\delta(\text{N}-\text{OH})$) 9.60 s, b	210 (160), 240 (720), 325 (1600)
3	3410	1615	7.15-7.30 m	3.65 t	3.33 t	7.70 s, b	211 (500), 254 (430), 301 (4956), 334 (1810), 351 (1950), 400 (291)
4		1650, 1550	6.85-7.12 m	3.30-3.60 m			215 (560), 255 (600), 310 (1700), 402 (800)
5	3400	1628	6.84 m	3.70-3.87 m		12.10 s, b	223 (580), 263 (625), 310 (1630), 368 (1610), 400 (700), 420 (440)
6	3420	1632	6.90 m ($\delta(\text{N}=\text{CH})$ 8.30 s; $\delta(\text{C}-\text{OH})$ 7.80 s, b)	3.68-3.84 m		12.90 s, b	226 (585), 248 (600), 262 (620), 294 (1500), 299 (1600), 368 (1560), 418 (520)

^a m = multiplet; d = doublet; s = singlet; b = broad.