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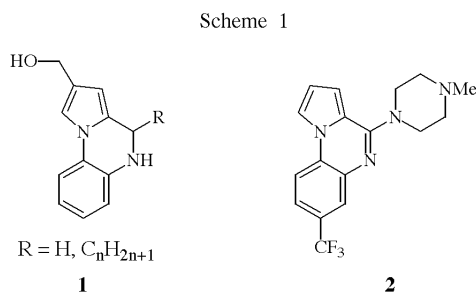
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The reaction of 1-(2-aminophenyl)pyrrole with aromatic or heteroaromatic aldehydes in ethanol and catalytic amounts of acetic acid leads to 4,5-dihydropyrrolo[1,2-*a*]quinoxalines in high yields. When aliphatic aldehydes were used under the same conditions, a slow oxidation to the corresponding pyrrolo[1,2-*a*]quinoxalines can occur; the oxidation can be avoided by preparing *in situ* the 5-acetyl derivatives of the 4,5-dihydropyrrolo[1,2-*a*]quinoxalines.

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Pyrrolo[1,2-*a*]quinoxalines and their 4,5-dihydro derivatives exhibit interesting biological and pharmacological properties [1-6]. Particularly the compounds **1** proved to be useful materials for pharmaceutical preparations [5]; the commercially available maleate of compound **2** (CGS 12066B) is recognized as a potent and selective serotonin-1B agonist [6].



Although the obtention of 4,5-dihydropyrrolo[1,2-*a*]quinoxalines from *o*-phenylenediamine and 2-hydroxy-1,5-diketones has been previously reported [8], 1-(2-aminophenyl)pyrrole (**3**) has been recognized as an excellent precursor for the preparation of these and related compounds [9-11]. However, the feasibility of the latter method is strongly dependent on the carbonyl compound and the reaction conditions. It has been reported for example that the hydrochloride of compound **3** in contrast to the free base does not react with benzaldehyde [10].

The formation of 4,5-dihydropyrrolo[1,2-*a*]quinoxalines involves a Mannich type reaction for which a primary or secondary amine, an aldehyde (formaldehyde generally) and a nucleophilic carbon are necessary. Besides formaldehyde, other reactive aldehydes have been applied in this process, some of them unsuccessfully [12,13]. For that reason, we tried to explore the scope and the limitations of this reaction starting from 1-(2-aminophenyl)pyrrole (**3**), which serves simultaneously as amine and nucleophilic carbon. When **3** and aldehydes **4a-i** dissolved

in ethanol were heated for 5 to 10 minutes at 50 °C in the presence of catalytic amount of acetic acid, the products **5a-i** were generated in excellent yields. Terephthalaldehyde (**4j**) reacts with two equivalents of **3** to give 84% of 1,4-bis(4,5-dihydropyrrolo[1,2-*a*]quinoxalin-4-yl)benzene **5j**. Carbon atom C-4 in **5** is a chiral center. Therefore **5a-i** were obtained as racemates; however, compound **5j** has two chiral centers and should be generated in the chiral form (*RR* and *SS*) and in the achiral *meso* form. Although the two chiral centers are relatively far apart, some of the ¹³C nmr signals are doubled, which is a proof for diastereomers. The statistical ratio *RR/SS: meso* would be 1:1; however, the ¹³C nmr spectrum of the raw product reveals that one component predominates strongly.

When aliphatic aldehydes like **4k** and **4l** were applied, the products **5k** and **5l** showed a slow oxidation to the corresponding pyrrolo[1,2-*a*]quinoxalines. The oxidation could be avoided by the *in situ* subsequently performed acetylation with acetic anhydride; thus, the amides **6k** and **6l** were obtained.

The mild reaction conditions (50 °C, catalytic amounts of acetic acid) guaranteed a broad application of this procedure. The only failure was observed when we used 2,4-dinitrobenzaldehyde (**4m**). A hardly soluble orange

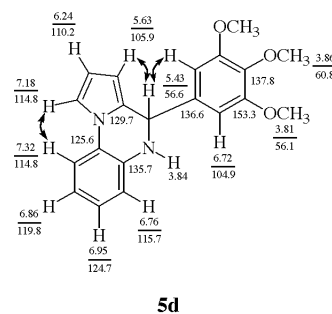
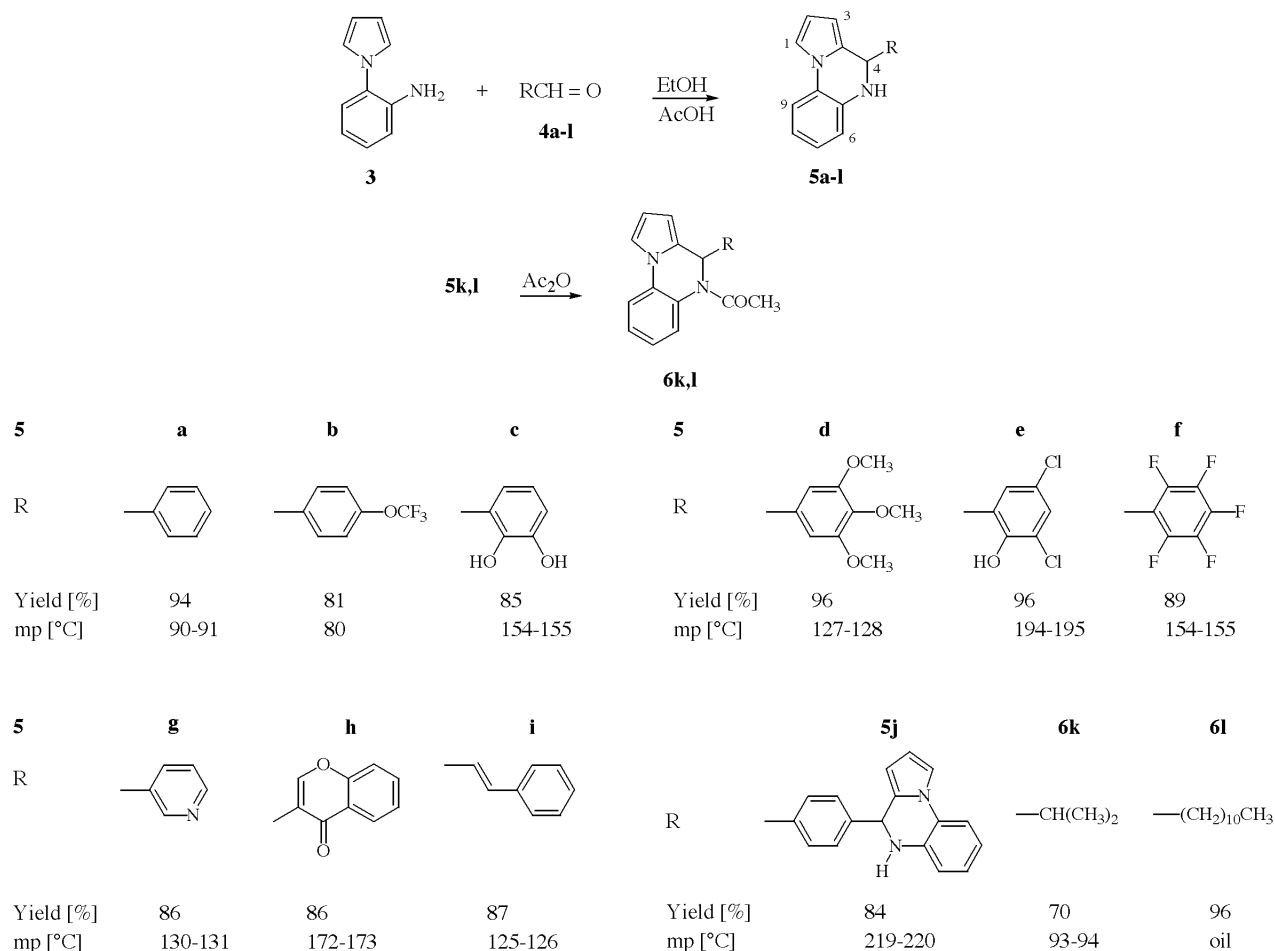


Figure 1. ¹H and ¹³C nmr data of **5d** in deuteriochloroform (chemical shifts δ related to TMS as internal standard; the arrows indicate the most important nuclear Overhauser effects).

Scheme 2



product precipitated immediately. It turned out that the primarily formed Schiff base **7** does not undergo cyclization, even when subjected to higher temperatures and longer reaction times.

The mass spectra of compounds **5** showed that the molecular ions $M^{+\bullet}$ are preferentially cleaved to $[M - R]^+$ where R represents the substituent on C-4; additionally the acetyl groups in **6k,l** are split off, so that the ion $[C_{11}H_9N_2]^+$ with $m/z = 169$ is formed in all cases **5a-j** and **6k,l**. The compounds were extensively characterized by their 1H and ^{13}C nmr spectra including 2D-techniques like COSY, HMBC, NOESY [14]. The assignments of the 1H

and ^{13}C signals for **5d** are shown in Figure 1. The various substituents on C-4 have only a small influence on the chemical shifts of the tricyclic scaffold.

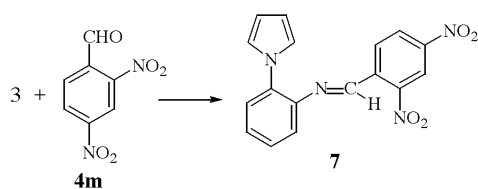
EXPERIMENTAL

The melting points were determined on a Kofler apparatus and are uncorrected. The 1H and ^{13}C nmr spectra were recorded with Varian Gemini 200 and Bruker AM 400 instruments; chemical shifts (δ) are reported in ppm relative to tetramethylsilane as internal standard. Silica gel plates (Merck F₂₅₄) were used for analytical tlc. The mass spectra were run on a Varian Model MAT MS-311 spectrometer at 70 eV. Microanalyses were performed with a Perkin Elmer Model 240 C Elemental Analyser.

General Procedure for the Preparation of the 4,5-Dihydropyrrolo[1,2-a]quinoxalines **5a-l.**

A solution of 1-(2-aminophenyl)pyrrole **3** (0.20 g, 1.26 mmol) and the corresponding aldehyde **4** (1.26 mmol of **4a-i,k,l** and 0.63 mmol of **4j**), in ethanol (2 ml) and acetic acid (5 drops) was heated to 50 °C during 5 to 10 minutes, following the reaction by tlc on silica gel plates with chloroform as the

Scheme 3



eluent. After cooling, the resulting precipitate of **5a-i** was filtered off and recrystallized from ethanol. As soon as the starting compounds for **5k,l** were consumed, 194 mg (1.9 mmoles) of acetic anhydride was added, and the reaction mixture was heated at 50 °C for 2 minutes more. The solvent was removed under reduced pressure (1.5×10^3 Pa) and the residue was purified by column chromatography (3 x 20 cm silica gel, chloroform).

4,5-Dihydro-4-phenylpyrrolo[1,2-*a*]quinoxaline (**5a**).

The compound was obtained from benzaldehyde (**4a**) as colorless crystals in 94% yield, mp 90-91 °C. The ^1H nmr spectrum in deuteriochloroform showed signals at δ 4.13 (br s, 1H, N-H), 5.53 (s, 1H, 4-H), 5.60 (dd, $^3J = 2.9$ Hz, $^4J = 1.5$ Hz, 1H, 3-H), 6.26 (t, 1H, 2-H, $^3J = 3.0$ Hz), 6.73 (dd, 1H, 6-H), 6.86 (td, 1H, 8-H), 6.98 (td, 1H, 7-H), 7.20 (dd, $^3J = 3.0$ Hz, $^4J = 1.5$ Hz, 1H, 1-H), 7.32-7.46 ppm (m, 6H, 9-H and phenyl protons); ^{13}C nmr (deuteriochloroform): $\delta = 56.2$ (C-4), 106.0 (C-3), 110.2 (C-2), 114.4 (C-1), 114.8 (C-9), 115.5 (C-6), 119.5 (C-8), 124.7 (C-7), 125.6 (C-9a), 127.8, 128.3, 128.7 (CH, Phenyl), 129.8 (C-3a), 136.0 (C-5a), 141.3 (C_q, Phenyl); ms: m/z (%) 246 (44) [$\text{M}^{+\bullet}$], 169 (100).

Anal. Calcd. for $\text{C}_{17}\text{H}_{14}\text{N}_2$: C, 82.90; H, 5.73; N, 11.37. Found: C, 82.86; H, 5.57; N, 11.36.

4,5-Dihydro-4-(4-trifluoromethoxyphenyl)pyrrolo[1,2-*a*]quinoxaline (**5b**).

This compound was obtained from *p*-trifluoromethoxybenzaldehyde (**4b**) as colorless crystals in 81% yield, mp 80°. The ^1H nmr spectrum in deuteriochloroform showed signals at δ 4.18 (br s, 1H, N-H), 5.54 (s, 1H, 4-H), 5.57 (dd, $^3J = 3.4$, $^3J = 1.5$ Hz, 1H, 3-H), 6.26 (t, $^3J = 3.4$ Hz, 1H, 2-H), 6.74 (dd, 1H, 6-H), 6.87 (td, 1H, 8-H), 6.99 (td, 1H, 7-H), 7.22 (m, 3H, 1-H and two aromat. protons), 7.34 (dd, 1H, 9-H), 7.52 (br d, 2 H, aromat. protons); ^{13}C nmr (deuteriochloroform): δ 55.5 (C-4), 106.0 (C-3), 110.3 (C-2), 114.6/ 114.8 (C-1, C-9), 115.4 (C-6), 119.7 (C-8), 120.5 (OCF₃, $^1J = 384.2$ Hz), 121.1/ 129.4 (CH, Aryl), 124.8 (C-7), 125.4 (C-9a), 129.4 (C-3a), 135.8 (C-5a), 140.2/ 149.1 (C_q, Aryl); ms: m/z (%) 330 (36) [$\text{M}^{+\bullet}$], 169 (100).

Anal. Calcd for $\text{C}_{18}\text{H}_{13}\text{N}_2\text{OF}_3$: C, 65.45; H, 3.97; N, 8.48. Found: C, 65.38; H, 3.79; N, 8.45.

4-(2,3-Dihydroxyphenyl)-4,5-dihydropyrrolo[1,2-*a*]quinoxaline (**5c**).

This compound was obtained from 2,3-dihydroxybenzaldehyde (**4c**) as colorless crystals in 85% yield, mp 154-155 °C. The ^1H nmr spectrum in deuteriochloroform showed signals at δ 5.52 (s, 1H, 4-H), 5.56 (dd, $^3J = 3.4$, $^4J = 1.5$ Hz, 1H, 3-H), 6.03 (br s, 1H, N-H), 6.24 (t, $^3J = 3.4$ Hz, 1H, 2-H), 6.69 (dd, 1H, 6-H), 6.77-7.06 (m, 5H, 7-H, 8-H and aryl protons), 7.19 (m, 1H, 1-H), 7.35 (dd, 1H, 9-H); ^{13}C nmr (deuteriochloroform): δ 56.3 (C-4), 106.7 (C-3), 110.7 (C-2), 115.2/ 115.3/ 115.4 (C-1, C-6, C-9), 117.3, 120.7, 122.3 (CH, aryl), 120.1 (C-8), 122.9/ 143.4/ 145.6 (C_q, aryl), 124.7 (C-7), 127.1 (C-9a), 128.1 (C-3a), 134.5 (C-5); ms: m/z (%) 278 (46) [$\text{M}^{+\bullet}$], 169 (100).

Anal. Calcd for $\text{C}_{17}\text{H}_{14}\text{N}_2\text{O}_2$: C, 73.37; H, 5.07; N, 10.07. Found: C, 73.38; H, 5.13; N, 10.06.

4,5-Dihydro-4-(3,4,5-trimethoxyphenyl)pyrrolo[1,2-*a*]quinoxaline (**5d**).

This compound was obtained from 3,4,5-trimethoxybenzaldehyde (**4d**) as colorless crystals in 96% yield, mp 127-128 °C. The ^1H nmr and the ^{13}C nmr data are shown in Figure 1; ms: m/z (%) 336 (31) [$\text{M}^{+\bullet}$], 169 (100).

Anal. Calcd for $\text{C}_{20}\text{H}_{20}\text{N}_2\text{O}_2$: C, 71.41; H, 5.99; N, 8.33. Found: C, 71.37; H, 5.99; N, 8.26.

4-(3,5-Dichloro-2-hydroxyphenyl)-4,5-dihydropyrrolo[1,2-*a*]quinoxaline (**5e**).

This compound was obtained from 3,5-dichloro-2-hydroxybenzaldehyde (**4e**) as pale yellow crystals in 96% yield, mp 194-195 °C. The ^1H nmr spectrum in dimethyl sulfoxide- d_6 showed signals at δ 5.72 (d, $^3J = 2.9$ Hz, 1H, 3-H), 5.91 (s, 1H, 4-H), 6.19 (t, 1H, $^3J = 2.9$ Hz), 6.51 (br s, 1H, N-H), 6.74 (td, 1H, 8-H), 6.86-6.94 (m, 2H, 6-H and 7-H), 7.01 (d, 1H, aryl), 7.42-7.46 (m, 2H, 1-H and aryl), 7.52 (d, 1H, 9-H); ^{13}C nmr (hexadeuteriodimethyl sulfoxide): δ 48.5 (C-4), 105.2 (C-3), 110.0 (C-2), 114.6/ 114.8 (C-1, C-9), 115.2 (C-6), 118.2 (C-8), 121.9/ 123.2/ 124.1/ 124.8/ 126.0/ 126.9/ 127.7/ 135.9/ 149.1 (C-3a, C-7, C-9a and aryl-C), 133.8 (C-5a); ms: m/z (%) 330 (7) [$\text{M}^{+\bullet}$, Cl₂ pattern], 169 (100).

Anal. Calcd for $\text{C}_{17}\text{H}_{12}\text{N}_2\text{OCl}_2$: C, 61.65; H, 3.65; N, 8.46. Found: C, 61.71; H, 3.71; N, 8.31.

4,5-Dihydro-4-(pentafluorophenyl)pyrrolo[1,2-*a*]quinoxalines (**5f**).

This compound was obtained from pentafluorobenzaldehyde (**4f**) as colorless crystals in 89% yield, mp 154-155 °C. The ^1H nmr spectrum in deuteriochloroform showed signals at δ 4.06 (br s, 1H, N-H), 5.86 (br d, $^3J = 3.4$ Hz, 1H, 3-H), 6.26 (s, 1H, 4-H), 6.30 (t, $^3J = 3.4$ Hz, 1H, 2-H), 6.68 (dd, 1H, 6-H), 6.85 (td, 1H, 8-H), 6.97 (td, 1H, 7-H), 7.22 (dd, $^3J = 3.0$ Hz, $^4J = 1.5$ Hz, 1H, 1-H), 7.34 (dd, 1H, 9-H); ^{13}C nmr (deuteriochloroform): δ 45.8 (C-4), 105.6 (C-3), 110.1 (C-2), 114.4/ 114.6 (C-1, C-9), 115.1 (C-6), 119.6 (C-8), 124.8 (C-7), 126.4 (C-9a), 129.7 (C-3a), 133.8 (C-5a), 134.2-147.8 (aryl-C, superimposed); ms: m/z (%) 336 (35) [$\text{M}^{+\bullet}$], 169 (100).

Anal. Calcd for $\text{C}_{17}\text{H}_9\text{N}_2\text{F}_5$: C, 60.72; H, 2.70; N, 8.33. Found: C, 60.75; H, 2.69; N, 8.33.

4,5-Dihydro-4-(3-pyridyl)pyrrolo[1,2-*a*]quinoxaline (**5g**).

This compound was obtained from 3-pyridinecarboxaldehyde (**4g**) as colorless crystals in 86% yield, mp 130-131 °C. The ^1H nmr spectrum in deuteriochloroform showed signals at δ 4.41 (br s, 1H, N-H), 5.56 (m, 2H, 3-H and 4-H), 6.24 (t, $^3J = 2.9$ Hz, 1H, 2-H), 6.76 (dd, 1H, 6-H), 6.85 (td, 1H, 8-H), 6.97 (td, 1H, 7-H), 7.19 (dd, $^3J = 2.9$ Hz, $^4J = 1.5$ Hz, 1H, 1-H), 7.24-7.34 (m, 2H, 9-H and pyridine-H), 7.81 (dt, 1H, pyridine H), 8.56 (dd, 1H, pyridine H), 8.66 (d, 1H, pyridine-H); ^{13}C nmr (deuteriochloroform): δ 53.9 (C-4), 106.1 (C-3), 110.3 (C-2), 114.6/ 114.8 (C-1, C-9), 115.5 (C-6), 119.8 (C-8), 123.8/ 135.7/ 137.1/ 149.4/ 149.8/ (pyridine C), 124.8 (C-7), 125.4 (C-9a), 128.8 (C-3a), 135.6 (C-5a); ms: m/z (%) 247 (34) [$\text{M}^{+\bullet}$], 169 (100).

Anal. Calcd for $\text{C}_{16}\text{H}_{13}\text{N}_3$: C, 77.71; H, 5.30; N, 16.99. Found: 77.68; H, 5.34; N, 17.04.

4-(3-Chromonyl)-4,5-dihydropyrrolo[1,2-*a*]quinoxaline (**5h**).

This compound was obtained from 3-chromonaldehyde (**4h**) as yellow crystals in 86% yield, mp 172-173 °C. The ^1H nmr spectrum in deuteriochloroform showed signals at δ 5.28 (br s, 1H, N-H), 5.90 (s, 1H, 4-H), 6.10 (dd, $^3J = 3.4$ Hz, $^4J = 1.5$ Hz, 1H, 3-H), 6.37 (t, $^3J = 3.4$ Hz, 1H, 2-H), 6.67 (dd, 1H, 6-H), 6.77 (td, 1H, 8-H), 6.88 (td, 1H, 7-H), 7.12 (s, 1H, CH-O), 7.25 (dd, $^3J = 3.2$ Hz, $^4J = 1.5$ Hz, 1H, 1-H), 7.28-7.42 (m, 3H, 9-H and two aromatic H), 7.62 (td, 1H, aromatic H), 8.21 (dd, 1H,

aromatic H); ^{13}C nmr (deuteriochloroform): δ 47.7 (C-4), 106.1 (C-3), 110.3 (C-2), 113.7/ 118.2/ 123.8/ 124.1/ 124.6/ 125.0/ 125.2/ 125.7/ 133.9, 154.2, 156.4 (C-3a, C-7, C-9a and chrom. C), 114.6/ 114.9 (C-1, C-9), 116.4 (C-6), 119.3 (C-8), 134.5 (C-5a), 177.7 (C=O); ms: m/z (%) 314 (100) [$\text{M}^{+\bullet}$], 169 (50).

Anal. Calcd for $\text{C}_{20}\text{H}_{14}\text{N}_2\text{O}_2$: C, 76.42; H, 4.49; N, 8.91. Found: C, 76.21; H, 4.55; N, 8.77.

4,5-Dihydro-4-styrylpyrrolo[1,2-*a*]quinoxaline (**5i**).

This compound was obtained from cinnamaldehyde (**4i**) as yellow crystals in 87% yield, mp 125–126 °C. The ^1H nmr spectrum in deuteriochloroform showed signals at δ 4.07 (br s, 1H, N-H), 5.13 (d, $^3J = 7.8$ Hz, 1H, 4-H), 5.99 (dd, $^3J = 2.9$ Hz, $^4J = 1.4$ Hz, 1H, 3-H), 6.31 (t, $^3J = 3.0$ Hz, 1H, 2-H), 6.41 (dd, $^3J = 7.8$ Hz, $^3J_{\text{trans}} = 15.6$ Hz, 1H, olefin. H), 6.64 (d, $^3J_{\text{trans}} = 15.6$ Hz, 1H, olefin. H), 6.76 (dd, 1H, 6-H), 6.83 (td, 1H, 8-H), 6.97 (td, 1H, 7-H), 7.19 (dd, $^3J = 2.9$ Hz, $^4J = 1.5$ Hz, 1H, 1-H), 7.23–7.48 ppm (m, 6H, 9-H and other aromatic H); ^{13}C nmr (deuteriochloroform): δ 56.8 (C-4), 106.5 (C-3), 110.3 (C-2), 113.7, 127.9, 128.5, 128.9, 137.4, 141.6 (aromatic and olefinic C), 114.3/ 114.5 (C-1, C-9), 115.8 (C-6), 119.2 (C-8), 124.6 (C-7), 125.5 (C-9a), 129.6 (C-3a), 136.1 (C-5a); ms: m/z (%) 272 (100) [$\text{M}^{+\bullet}$], 169 (55).

Anal. Calcd for $\text{C}_{19}\text{H}_{16}\text{N}_2$: C, 83.79; H, 5.92; N, 10.29. Found: C, 83.72; H, 5.97; N, 10.02.

1,4-Bis(4,5-dihydropyrrolo[1,2-*a*]quinoxalin-4-yl)benzene (**5j**).

This compound was obtained from terephthaldehyde (**4j**) as pale yellow crystals in 84% yield, mp 219–220 °C. The ^1H nmr spectrum in deuteriochloroform showed signals at δ 4.17 (br s, 2H, N-H) 5.54 (s, 2H, 4-H), 5.59 (d, $^3J = 3.4$ Hz, 2H, 3-H), 6.25 (t, $^3J = 3.4$ Hz, 2H, 2-H), 6.71 (d, 2H, 6-H), 6.84 (td, 2H, 8-H), 6.97 (t, 2H, 7-H), 7.19 (dd, $^3J = 2.9$ Hz, $^4J = 1.5$ Hz, 2H, 1-H), 7.32 (dd, 2H, 9-H), 7.45 (s, 4H, aromatic H); ^{13}C nmr (deuteriochloroform): δ 55.9 (C-4), 105.9 (C-3), 110.2 (C-2), 114.4/ 114.7 (C-1, C-9), 115.4 (C-6), 119.4 (C-8), 124.7 (C-7), 125.5 (C-9a), 128.4 (aromatic CH), 129.7 (C-3a), 136.0 (C-5a), 141.6 (aromatic C_q); further small signals at 106.2, 110.3, 115.5, 119.5, 127.6, 129.0 and 134.0 are due to a diastereomer; ms: m/z (%) 414 (37) [$\text{M}^{+\bullet}$], 169 (91).

Anal. Calcd for $\text{C}_{28}\text{H}_{22}\text{N}_4$: C, 81.13; H, 5.35; N, 13.52. Found: C, 80.93; H, 5.42; N, 13.26.

5-Acetyl-4,5-dihydro-4-isopropylpyrrolo[1,2-*a*]quinoxaline (**6k**).

This compound was obtained from isobutyraldehyde (**4k**) as colorless crystals in 70% yield, mp 93–94 °C. The ^1H nmr spectrum in deuteriochloroform showed signals at δ 0.87 (m, 6H, CH_3), 1.46 (m, 1H, CH, isopropyl), 2.17 (s, 3H, COCH_3), 5.56 (d, $^3J = 10.3$ Hz, 1H, 4-H), 6.04 (dd, $^3J = 3.4$ Hz, $^4J = 1.0$ Hz, 1H, 3-H), 6.27 (t, $^3J = 3.4$ Hz, 1H, 2-H), 7.11 (dd, $^3J = 3.4$ Hz, $^4J = 1.5$ Hz, 1H, 1-H), 7.14–7.30 (m, 3H, 6-H, 7-H, 8-H), 7.39 (d, 1H, 9-H); ^{13}C nmr (deuteriochloroform): δ 19.0/ 19.3 (CH_3), 22.5 (COCH_3), 30.7 (CH), 55.6 (C-4), 107.2 (C-3), 110.3 (C-2), 114.0/ 116.0 (C-1, C-9), 123.9 (C-7), 126.1 (C-6), 126.6 (C-8), 128.3 (C-3a), 129.7 (C-9a), 131.0 (C-5a), 169.4 (C=O); ms: m/z (%) 254 (16) [$\text{M}^{+\bullet}$], 169 (100).

Anal. Calcd for $\text{C}_{16}\text{H}_{18}\text{N}_2\text{O}$: C, 75.56; H, 7.13; N, 11.01. Found: C, 75.37; H, 7.17; N, 10.98.

5-Acetyl-4,5-dihydro-4-undecylpyrrolo[1,2-*a*]quinoxaline (**6l**).

This compound was obtained from dodecanal (**4l**) as colorless oil in 96% yield. The ^1H nmr spectrum in deuteriochloroform showed signals at δ 0.85 (t, 3H, CH_3), 1.18–1.24 (br m, 20H, CH_2), 2.18

(s, 3H, COCH_3), 5.95 (d, $^3J = 7.3$ Hz, 1H, 4-H), 6.03 (dd, $^3J = 3.4$ Hz, $^4J = 1.0$ Hz, 1H, 3-H), 6.27 (t, $^3J = 3.4$ Hz, 1H, 2-H), 7.11 (dd, $^3J = 2.9$ Hz, $^4J = 1.5$ Hz, 1H, 1-H), 7.13–7.30 (m, 3H, 6-H, 7-H, 8-H), 7.39 (d, 1H, 9-H); ^{13}C nmr (deuteriochloroform): δ 14.1 (CH_3), 22.6/ 22.7/ 25.9/ 29.1/ 29.3/ 29.4/ 29.5/ 29.6/ 31.9/ 33.7 (CH_2), 49.5 (C-4), 105.6 (C-3), 110.4 (C-2), 114.0/ 115.9 (C-1, C-9), 123.9 (C-7), 126.2 (C-6), 126.6 (C-8), 127.7 (C-9a), 129.7 (C-3a), 129.7 (C-5a), 169.2 (C=O); ms: m/z (%) 366 (23) [$\text{M}^{+\bullet}$], 169 (100).

Anal. Calcd for $\text{C}_{24}\text{H}_{34}\text{N}_2\text{O}$: C, 78.64; H, 9.35; N, 7.64. Found: C, 78.39; H, 9.54; N, 7.74.

N-[(*E*)-2,4-Dinitrophenylmethylidene]-2-(1*H*-pyrrol-1-yl)-aniline (**7**).

The compound was obtained in a quantitative yield in the reaction of **3** and 2,4-dinitrobenzaldehyde (**4m**); it is a yellow-brown solid with mp 151–152 °C. The ^1H nmr spectrum in hexadeuteriodimethyl sulfoxide contains the following signals: δ 6.12 (m, 2H, pyrrole), 7.06 (m, 2H, pyrrol), 7.28 (dd, 1H, aromatic H), 7.33–7.53 (m, 3H, aromatic H), 8.24 (d, 1H, aromatic H), 8.64 (dd, 1H, aromatic H), 8.82 (d, 1H, aromatic H), 8.99 (s, 1H, CH=N); ^{13}C nmr (hexadeuteriodimethyl sulfoxide): δ 109.5, 119.9, 120.2, 122.7, 124.9, 127.4, 128.0, 131.0, 134.3, 135.0, 143.5, 148.3, 148.9 (aromatic C), 158.6 (HC=N).

Anal. Calcd for $\text{C}_{17}\text{H}_{12}\text{N}_4\text{O}_4$: C, 60.67; H, 3.59; N, 16.72. Found: C, 60.67; H, 3.59; N, 16.72.

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REFERENCES AND NOTES

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