Synthesis and Properties of (*E*)-4-[Alkyl(aryl)iminomethyl]-2-methoxy(ethoxy)phenyl Adamantane-1-carboxylates

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Abstract—Condensation of 4-formyl-2-methoxy(ethoxy)phenyl adamantane-1-carboxylates with aliphatic, cycloaliphatic, and aromatic amines gave the corresponding adamantane-containing Schiff bases as *E* isomers with respect to the CH=N azomethine bond. The reaction of 2-methoxy-4-(naphthalen-2-yliminomethyl)phenyl adamantane-1-carboxylate with cyclohexane-1,3-dione and dimedone led to the formation of 2-methoxy-4-(11-0xo-7,8,9,10,11,12-hexahydrobenzo[*a*]acridin-12-yl)phenyl adamantane-1-carboxylates. Quantum-chemical calculations of the energies of formation of *E* and *Z* isomers of some of the synthesized Schiff bases were performed.

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Nitrogen-containing adamantane derivatives exhibit a broad spectrum of biological activity [1]. Compounds possessing antiviral, curare-like, myorelaxant, anticholine esterase, psychostimulating, neurotropic, and local anesthetic properties were found in this series [2]. Such efficient drugs as Midantan, Memantine, Gludantan, Rimantadine, and Adapromine were developed on the basis of adamantane derivatives [3]. We previously reported on the synthesis of a series of adamantane derivatives containing pharmacophoric fragments with a view to reveal among them new biologically active substances [4–8].

The goal of the present work was to obtain new adamantane-containing Schiff bases by condensation of adamantane-1-carboxylic acid esters derived from vanillin (Ia) and vanillal (Ib) with aliphatic, cycloaliphatic, and aromatic primary amines IIa–IIt. The reactions were carried out in anhydrous methanol on heating under reflux over a period of 10–15 min, and their mild conditions (the absence of catalyst) favored conservation of labile ester groups. The products were isolated in 85–92% yield, and their purity was $96\pm2\%$ according to the ¹H NMR data. We thus synthesized adamantane-containing Schiff bases IIIa–IIIt and IVa–IVt, including those possessing two adamantane fragments (compounds IIId and IVd) (Scheme 1).

Adamantane-containing Schiff bases **IIIa–IIIt** and **IVa–IVt** were isolated as colorless or slightly colored crystalline substances; they contained no impurities of initial compounds and required no additional purifica-



Ia, III, R = Me; Ib, IV, R = Et; R' = Me(CH₂)₁₅ (a), Me(CH₂)₁₇ (b), *cyclo*-C₆H₁₁ (c), (1-Ad)CH(Me) (d), Ph (e), 4-MeC₆H₄ (f), 2-PhC₆H₄ (g), 4-PhC₆H₄ (h), 4-BrC₆H₄ (i), 2-HOC₆H₄ (j), 4-PhOC₆H₄ (k), 4-MeC(O)C₆H₄ (l), 4-EtC(O)C₆H₄ (m), 3-HOCOC₆H₄ (n), 4-HOCOC₆H₄ (o), 4-EtOCOC₆H₄ (p), 4-BuOCOC₆H₄ (q), 1-C₁₀H₇ (r), 2-C₁₀H₇ (s), 1-Br-2-C₁₀H₆ (t).

tion. Their structure was confirmed by the IR, UV, and ¹H NMR spectra, elemental analyses, and cryoscopic determination of the molecular weight. Protons in the azomethine group (HC=N) in compounds **IIIa–IIIt** and **IVa–IVt** resonated in the ¹H NMR spectra as singlets in the region δ 8.23–8.58 ppm, which is typical of *E* isomers [9].

Schiff bases III and IV can be used as initial compounds for the synthesis of analogs of acridine alkaloids containing adamantane fragments. Compound IIIs reacted with an equimolar amount of cyclohexane-1,3-dione or dimedone (5,5-dimethylcyclohexane-1,3dione) on heating in ethanol in the absence of a catalyst to give 70-75% of 2-methoxy-4-(11-oxo-7,8,9,10,11,12-hexahydrobenzo[*a*]acridin-12-yl)phenyl adamantane-1-carboxylates Va and Vb, respectively (Scheme 2). Compounds Va and Vb were also synthesized by three-component condensation of aldehyde Ia with naphthalen-2-amine and the corresponding diketone. In the recent time, three-component condensations have become more and more important as efficient and selective synthetic routes to fused nitrogencontaining heterocycles [10-13].

Heterocyclization of functionally substituted benzaldehyde **Ia** containing a methoxy group and adamantanecarboxylic acid moiety opens a way to functionalized aza heterocycles having a partly hydrogenated quinoline fragment, which may be regarded as analogs of quinoline antibiotics, pesticides, and compounds possessing antitumor, bactericidal, and anti-enzyme activity [3, 14–17].

The condensation of aldehyde Ia with naphthalen-2-amine and 1,3-diketone was carried out by heating equimolar amounts of the reactants in ethanol in the absence of a catalyst. Fused aza heterocycle is formed as a result of a series of transformations including initial reaction of aldehyde Ia with naphthalen-2-amine (IIs) to give Schiff base IIIs which then takes up cyclohexane-1,3-dione molecule at the CH=N carbon atom, yielding intermediate amino diketone. The latter undergoes hydramine fission into the corresponding amine and 2-arylmethylidenecyclohexane-1,3-dione in which the exocyclic double bond is activated due to conjugation with two neighboring carbonyl groups. Electrophilic substitution in the naphthalene ring at the carbon atom in the α -position with respect to the amino group leads to amino diketone whose oxidative intramolecular cyclization selectively affords compound Va or Vb. By analogy with the data of [18], the transformation of amino diketone may be regarded as rearrangement like Hofmann-Martius (migration of an alkyl substituent on the nitrogen atom in aniline molecule into the *ortho* position of aromatic ring [19]).



 $R = H(\mathbf{a}), Me(\mathbf{b}).$

Scheme 3.



The structure of compounds **Va** and **Vb** was confirmed by their elemental compositions and ¹H NMR and IR spectra. The IR spectra of **Va** and **Vb** characteristically contained absorption bands belonging to stretching and bending vibrations of the NH bond in the dihydropyridine fragment (3270–3260 and 1635– 1630 cm⁻¹, respectively). Stretching vibrations of the carbonyl group conjugated with the enamine fragment appeared at 1645–1640 cm⁻¹. In the ¹H NMR spectra of benzo[*a*]acridinones **Va** and **Vb** we observed singlets from the 12-H and NH protons at δ 5.85 and 9.3 ppm (cf. [9, 10, 12]), as well as three broadened singlets at δ 1.75 (6H, CH), 1.95 (6H, CH₂), and 2.05 ppm (6H, CH₂) which are typical of 1-substituted adamantane fragment.

As noted above, Schiff bases IIIa-IIIt and IVa-IVt were assigned E configuration with respect to the azomethine CH=N bond on the basis of the ¹H NMR data. With a view to confirm this assignment, we calculated the heats of formation $\Delta H_{\rm f}$ of the E and Z isomers of Schiff bases IIIe, IIIr, IIIs, and IVe. The calculations were performed in terms of the MNDO PM3 semiempirical approximation [20, 21] using GAMESS program [22] with complete optimization of all bond lengths and bond and dihedral angles. The following $\Delta H_{\rm f}$ values were obtained (kcal/mol) for the E isomers (the data for the Z isomers are given in parentheses): IIIe, 66.8 (-65.8); IIIr, -48.2 (-47.1); **IIIs**, -49.7 (-48.6); **IVe**, -71.7 (-70.4). It is seen that in all cases the E isomer is more energetically favorable (by 1.0–1.3 kcal/mol) than the Z isomer. The E isomer of Schiff base IIIs derived from naphthalen-2amine is more stable (by 1.5 kcal/mol) than its analog E-IIIr derived from naphthalen-1-amine, which is consistent with the data of [23].

Using the same calculation procedure, we estimated the heats of formation of compounds Va and Vb and alternative condensation products VIa and VIb

(Scheme 3). The $\Delta H_{\rm f}$ values were as follows, kcal/mol: Va, -100.4; Vb, -89.9; VIa, -110.9; VIb, -102.3. Thus compounds Va and Vb are thermodynamically more stable than isomeric structures VIa and VIb by 8.6–10.5 kcal/mol. This means that the condensation of IIIs with cyclohexane-1,3-diones should lead to the formation of thermodynamically more stable products Va and Vb.

EXPERIMENTAL

The IR spectra were recorded in KBr on a Nicolet Protégé-460 spectrometer with Fourier transform. The UV spectra were measured on a Specord UV-Vis spectrophotometer from 1×10^{-4} M solutions in methanol. The ¹H NMR spectra were obtained on a Tesla BS-587A instrument at 100 MHz from 5% solutions in chloroform-*d* or DMSO-*d*₆ (δ 2.50 ppm); the chemical shifts were determined relative to tetramethylsilane as internal reference. The elemental compositions were determined on an Elementar Vario EL-III C,H,N,O,S analyzer with an accuracy of ±0.1%. The molecular weights were determined by cryoscopy in benzene.

Initial adamantane-1-carboxylates **Ia** and **Ib** were synthesized as described in [5].

(E)-4-[Alkyl(aryl)iminomethyl]-2-methoxy-(ethoxy)phenyl adamantane-1-carboxylates IIIa– IIIt and IVa–IVt (general procedure). A solution of 5 mmol of 3-methoxy- or 3-ethoxy-4-(1-adamantyloxycarbonyl)benzaldehyde Ia or Ib and 5 mmol of the corresponding primary amine IIa–IIt in 30 ml of anhydrous methanol was heated for 10–15 min under reflux. The mixture was filtered while hot through a folded filter paper, and the filtrate was cooled and left to stand for 10–15 h at 5°C. The precipitate, Schiff base IIIa–IIIt or IVa–IIIt, was filtered off through a glass filter, washed with a small amount of methanol, and dried in air. (*E*)-4-(Hexadecyliminomethyl)-2-methoxyphenyl adamantane-1-carboxylate (IIIa). Yield 89%, mp 62–63°C. IR spectrum, v, cm⁻¹: 3073, 3060, 3004 (C–H_{arom}); 2955, 2918, 2850 (C–H_{aliph}); 1752 (C=O); 1650 (C=N); 1606, 1508 (C=C_{arom}); 1466, 1452 (CH₂); 1277, 1264, 1218, 1195, 1151, 1119, 1099, 1052, 1033 (C–O); 878, 860, 818, 802, 770, 730, 725 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 208 (14000), 220 (13000), 253 (9000), 300 (400). ¹H NMR spectrum, δ , ppm: 0.92 t (3H, Me), 1.10–2.15 m [43H, Ad, (CH₂)₁₄], 3.64 t (2H, CH₂N), 3.82 s (3H, MeO), 7.06–7.48 m (3H, H_{arom}), 8.23 s (1H, CH=N). Found, %: C 78.35; H 10.42; N 2.24. *M* 526.2. C₃₅H₅₅NO₃. Calculated, %: C 78.16; H 10.31; N 2.60. *M* 537.8.

(*E*)-2-Methoxy-4-(octadecyliminomethyl)phenyl adamantane-1-carboxylate (IIIb). Yield 90%, mp 63–64°C. IR spectrum, v, cm⁻¹: 3072, 3045, 3004 (C–H_{arom}); 2917, 2850 (C–H_{aliph}); 1753 (C=O); 1651 (C=N); 1603, 1513 (C=C_{arom}); 1470, 1451 (CH₂); 1275, 1219, 1197, 1170, 1160, 1119, 1112, 1054 (C–O); 867, 840, 822, 740, 723 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 207 (14000), 220 (13000), 254 (9000), 300 (400). ¹H NMR spectrum, δ , ppm: 0.92 t (3H, Me), 1.10–2.14 m [47H, Ad, (CH₂)₁₆], 3.63 t (2H, CH₂N), 3.82 s (3H, MeO), 7.06–7.48 m (3H, H_{arom}), 8.23 s (1H, CH=N). Found, %: C 78.86; H 10.58; N 2.09. *M* 551.3. C₃₇H₅₉NO₃. Calculated, %: C 78.53; H 10.51; N 2.48. *M* 565.9.

(*E*)-4-(Cyclohexyliminomethyl)-2-methoxyphenyl adamantane-1-carboxylate (IIIc). Yield 85%, mp 101–102°C. IR spectrum, v, cm⁻¹: 3070, 3015 (C–H_{arom}); 2926, 2908, 2852 (C–H_{aliph}); 1743 (C=O); 1643 (C=N); 1602, 1590, 1510 (C=C_{arom}); 1469, 1450 (CH₂); 1291, 1264, 1222, 1199, 1182, 1155, 1110, 1054, 1033 (C–O); 862, 849, 822, 801, 783, 730 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 208 (14000), 220 (12000), 253 (9000), 300 (400). ¹H NMR spectrum, δ , ppm: 1.10–2.15 m (26H, Ad, C₆H₁₁), 3.82 s (3H, MeO), 7.02–7.48 m (3H, H_{arom}), 8.22 s (1H, CH=N). Found, %: C 76.15; H 8.57; N 3.18. *M* 387.6. C₂₅H₃₃NO₃. Calculated, %: C 75.91; H 8.41; N 3.54. *M* 395.5.

(*E*)-4-[1-(1-Adamantyl)ethyliminomethyl]-2methoxyphenyl adamantane-1-carboxylate (IIId). Yield 92%, mp 200–201°C. IR spectrum, v, cm⁻¹: 3080, 3030 (C–H_{arom}); 2955, 2930, 2903, 2849, 2812 (C–H_{aliph}); 1752 C=O; 1647 (C=N); 1602, 1503 (C=C_{arom}); 1463, 1452 (CH₂); 1274, 1215, 1193, 1154, 1121, 1051, 1045 (CO); 880, 840, 821, 785, 750, 731 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 208 (15000), 221 (14000), 254 (9000), 300 (500). ¹H NMR spectrum, δ , ppm: 1.14 d (3H, Me), 1.55–2.15 m (30H, Ad), 2.84 q (1H, CH), 3.84 s (3H, MeO), 7.00–7.48 m (3H, H_{arom}), 8.18 s (1H, CH=N). Found, %: C 78.53; H 8.75; N 2.77. *M* 462.0. C₃₁H₄₁NO₃. Calculated, %: C 78.28; H 8.69; N 2.94. *M* 475.7.

(*E*)-2-Methoxy-4-phenyliminomethylphenyl adamantane-1-carboxylate (IIIe). Yield 88%, mp 124– 125°C. IR spectrum, v, cm⁻¹: 3090, 3070, 3030, 3020, 3004 (C–H_{arom}); 2965, 2940, 2905, 2867, 2849 (C–H_{aliph}); 1752 (C=O); 1629 (C=N); 1601, 1581, 1508, 1485 (C=C_{arom}); 1465, 1450 (CH₂); 1286, 1261, 1215, 1196, 1178, 1153, 1109, 1039 (C–O); 860, 852, 822, 803, 788, 765, 756, 740, 696 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 202 (33000), 221 (23000), 269 (15000), 316 (12000). ¹H NMR spectrum, δ , ppm: 1.65–2.40 m (15H, Ad), 3.91 s (3H, MeO), 7.00– 7.72 m (8H, H_{arom}), 8.40 s (1H, CH=N). Found, %: C 77.38; H 7.12; N 3.25. *M* 372.8. C₂₅H₂₇NO₃. Calculated, %: C 77.09; H 6.99; N 3.60. *M* 389.5.

(*E*)-2-Methoxy-4-[(4-methylphenyl)iminomethyl]phenyl adamantane-1-carboxylate (IIIf). Yield 88%, mp 141–142°C. IR spectrum, v, cm⁻¹: 3091, 3080, 3061, 3040, 3030, 3004 (C–H_{arom}); 2955, 2917, 2904, 2887, 2849 (C–H_{aliph}); 1750 (C=O); 1629 (C=N); 1600, 1583, 1508 (C=C_{arom}); 1463, 1450 (CH₂); 1288, 1261, 1218, 1184, 1156, 1110, 1041 (C–O); 873, 853, 816, 791, 735, 726, 718, 706, 676 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 201 (40000), 223 (37000), 270 (28000), 321 (28000). ¹H NMR spectrum, δ , ppm: 1.60–2.15 m (15H, Ad), 2.33 s (3H, Me), 3.83 s (3H, MeO), 7.02–7.75 m (7H, H_{arom}), 8.59 s (1H, CH=N). Found, %: C 77.64; H 7.29; N 3.19. *M* 393.6. C₂₆H₂₉NO₃. Calculated, %: C 77.39; H 7.24; N 3.47. *M* 403.5.

(*E*)-4-(Biphenyl-2yliminomethyl)-2-methoxyphenyl adamantane-1-carboxylate (IIIg). Yield 85%, mp 142–143°C. IR spectrum, v, cm⁻¹: 3090, 3080, 3057, 3040, 3021 (C–H_{arom}); 2925, 2902, 2846 (C–H_{aliph}); 1745 (C=O); 1626 (C=N); 1602, 1586, 1511, 1503 (C=C_{arom}); 1477, 1450 (CH₂); 1293, 1158, 1109, 1057, 1030 (C–O); 872, 861, 850, 846, 821, 772, 748, 732, 699, 678 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 205 (22000), 265 (13000), 318 (12000). ¹H NMR spectrum, δ , ppm: 1.67–2.40 m (15H, Ad), 3.92 s (3H, MeO), 6.94–7.62 m (12H, H_{arom}), 8.43 s (1H, CH=N). Found, %: C 80.25; H 6.83; N 2.78. *M* 456.0. C₃₁H₃₁NO₃. Calculated, %: C 79.97; H 6.71; N 3.01. *M* 465.6.

(*E*)-4-(Biphenyl-4-yliminomethyl)-2-methoxyphenyl adamantane-1-carboxylate (IIIh). Yield 87%, mp 164–165°C. IR spectrum, v, cm⁻¹: 3090, 3077, 3052, 3032, 3004 (C–H_{arom}); 2930, 2904, 2848 C–H_{aliph}); 1748 (C=O); 1631 (C=N); 1600, 1581, 1505 (C=C_{arom}); 1465, 1451 (CH₂); 1287, 1274, 1263, 1218, 1190, 1149, 1110, 1051, 1045, 1033 (C–O); 877, 848, 835, 819, 769, 740, 693, 670 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (20000), 270 (14000), 320 (10000). ¹H NMR spectrum, δ , ppm: 1.68–2.42 m (15H, Ad), 3.92 s (3H, MeO), 6.98–7.74 m (12H, H_{arom}), 8.44 s (1H, CH=N). Found, %: C 80.23; H 6.88; N 2.76. *M* 454.2. C₃₁H₃₁NO₃. Calculated, %: C 79.97; H 6.71; N 3.01. *M* 465.6.

(*E*)-4-[(4-Bromophenyl)iminomethyl]-2-methoxyphenyl adamantane-1-carboxylate (IIIi). Yield 90%, mp 145–146°C. IR spectrum, v, cm⁻¹: 3082, 3055, 3004 (C–H_{arom}); 2940, 2909, 2852 (C–H_{aliph}); 1738 (C=O); 1625 (C=N); 1601, 1582, 1577, 1511, 1480 (C=C_{arom}); 1470, 1453 (CH₂); 1289, 1265, 1217, 1197, 1181, 1157, 1111, 1055, 1029 (C–O); 871, 848, 824, 786, 767, 745, 736, 703, 676 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 205 (24000), 224 (23000), 268 (18000), 320 (18000). ¹H NMR spectrum, δ , ppm: 1.55–2.15 m (15H, Ad), 3.83 s (3H, MeO), 7.01– 7.72 m (7H, H_{arom}), 8.58 s (1H, CH=N). Found, %: C 64.53; H 5.72; Br 16.75; N 2.63. *M* 455.9. C₂₅H₂₆BrNO₃. Calculated, %: C 64.11; H 5.60; Br 17.06; N 2.99. *M* 468.4.

(*E*)-4-[(2-Hydroxyphenyl)iminomethyl]-2-methoxyphenyl adamantane-1-carboxylate (IIIj). Yield 86%, mp 141–142°C. IR spectrum, v, cm⁻¹: 3407 (OH); 3077, 3040, 3026, 3004 (C–H_{arom}); 2931, 2906, 2852 (C–H_{aliph}); 1751 (C=O); 1624 (C=N); 1586, 1506, 1498 (C=C_{arom}); 1484, 1453 (CH₂); 1277, 1248, 1215, 1193, 1179, 1151, 1116, 1046, 1030, 1022 (C–O); 872, 845, 822, 815, 801, 782, 749, 735, 671 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (34000), 233 (15000), 284 (11000), 344 (10000). ¹H NMR spectrum, δ , ppm: 1.62–2.20 m (15H, Ad), 3.85 s (3H, MeO), 6.50–7.90 m (7H, H_{arom}), 8.68 s (1H, CH=N), 9.00 s (1H, OH). Found, %: C 74.47; H 7.01; N 3.04. *M* 392.5. C₂₅H₂₇NO₄. Calculated, %: C 74.05; H 6.71; N 3.45. *M* 405.5.

(*E*)-2-Methoxy-4-[(4-phenoxyphenyl)iminomethyl]phenyl adamantane-1-carboxylate (IIIj). Yield 90%, mp 112–113°C. IR spectrum, v, cm⁻¹: 3078, 3065, 3055, 3040, 3021, 3006 (C–H_{arom}); 2954, 2922, 2914, 2900, 2880, 2845 (C–H_{aliph}); 1740 (C=O); 1624 (C=N); 1600, 1587, 1577, 1510, 1496, 1486 (C=C_{arom}); 1468, 1450 (CH₂); 1292, 1274, 1265, 1238, 1214, 1198, 1180, 1156, 1111, 1099, 1052, 1034 (C–O); 866, 860, 854, 841, 814, 790, 780, 760, 740, 691, 680 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 200 (51000), 224 (34000), 271 (20000), 327 (20000). ¹H NMR spectrum, δ , ppm: 1.60–2.24 m (15H, Ad), 3.88 s (3H, MeO), 6.80–7.70 m (12H, H_{arom}), 8.49 s (1H, CH=N). Found, %: C 77.59; H 6.56; N 2.62. *M* 462.8. C₃₁H₃₁NO₄. Calculated, %: C 77.31; H 6.49; N 2.91. *M* 481.6.

(*E*)-4-[(4-Acetylphenyl)iminomethyl]-2-methoxyphenyl adamantane-1-carboxylate (IIII). Yield 85%, mp 111–112°C. IR spectrum, v, cm⁻¹: 3070, 3045, 3002 (C–H_{arom}); 2940, 2905, 2851 (C–H_{aliph}); 1748, 1660 (C=O); 1627 (C=N); 1595, 1527, 1507 (C=C_{arom}); 1468, 1452 (CH₂); 1275, 1219, 1198, 1178, 1150, 1121, 1051, 1042 (C–O); 852, 840, 830, 800, 784, 749, 733, 680 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (30000), 220 (20000), 255 (10000), 308 (15000). ¹H NMR spectrum, δ , ppm: 1.56–2.25 m (15H, Ad), 3.73 s (3H, Me), 3.84 s (3H, MeO), 6.90–8.10 m (7H, H_{arom}), 8.46 s (1H, CH=N). Found, %: C 75.56; H 6.84; N 3.03. *M* 412.9. C₂₇H₂₉NO₄. Calculated, %: C 75.15; H 6.77; N 3.25. *M* 431.5.

(*E*)-2-Methoxy-4-[4-(1-oxopropyl)phenyliminomethyl]phenyl adamantane-1-carboxylate (IIIm). Yield 87%, mp 110–111°C. IR spectrum, v, cm⁻¹: 3090, 3063, 3040, 3004 (C–H_{arom}); 2980, 2938, 2904, 2850 (C–H_{aliph}); 1749, 1685 (C=O); 1625 (C=N); 1596, 1583, 1557, 1514 (C=C_{arom}); 1469, 1452, 1440 (CH₂); 1240, 1230, 1184, 1170, 1129, 1054, 1031 (C–O); 882, 842, 806, 796, 750, 726, 880 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 205 (28000), 221 (20000), 254 (10000), 308 (14000). ¹H NMR spectrum, δ , ppm: 1.25 t (3H, Me), 1.56–2.24 m (15H, Ad), 2.94 q (2H, CH₂), 3.88 s (3H, MeO), 6.90–8.04 m (7H, H_{arom}), 8.44 s (1H, CH=N). Found, %: C 75.81; H 7.18; N 2.88. *M* 432.6. C₂₈H₃₁NO₄. Calculated, %: C 75.48; H 7.01; N 3.14. *M* 445.6.

3-{4-(*E***)-4-[(Adamantan-1-ylcarbonyloxy)-3-methoxyphenyl]methylideneamino}benzoic acid (IIIn).** Yield 91%, mp 222–223°C. IR spectrum, v, cm⁻¹: 2100–3550 (O–H); 3083, 3076, 3062, 3036, 3005 (C–H_{arom}); 2932, 2903, 2847 (C–H_{aliph}); 1758, 1691, 1682 (C=O); 1629 (C=N); 1583, 1506 (C=C_{arom}); 1460, 1452 (CH₂); 1270, 1215, 1195, 1179, 1151, 1118, 1050, 1041 (C–O); 896, 870, 844, 816, 807, 792, 784, 763, 745, 730, 688, 671 (δC–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 205 (17000), 222 (30000), 250 (10000), 306 (4000). ¹H NMR spectrum, δ , ppm: 1.68–2.30 m (15H, Ad), 3.90 s (3H, MeO), 6.92–8.02 m (7H, H_{arom}), 8.58 s (1H, CH=N), 9.97 s (1H, OH). Found, %: C 72.16; H 6.29; N 2.96. *M* 430.2. C₂₆H₂₇NO₅. Calculated, %: C 72.04; H 6.28; N 3.23. *M* 433.5.

4-{4-(E)-4-[(Adamantan-1-ylcarbonyloxy)-3-methoxyphenyl]methylideneamino}benzoic acid (IIIo). Yield 92%, mp 277–278°C. IR spectrum, v, cm⁻¹: 2300-3650 (OH); 3089, 3078, 3040, 3030, 3010 (C-H_{arom}); 2970, 2940, 2908, 2851 (C-H_{aliph}); 1744, 1677 (C=O); 1632 (C=N); 1598, 1581, 1568, 1513, 1508 (C=C_{arom}); 1468, 1450 (CH₂); 1284, 1263, 1219, 1194, 1170, 1158, 1150, 1111, 1102, 1040 (C-O); 871, 854, 816, 800, 770, 754, 756, 734, 700, 678 $(\delta C-H_{arom})$. UV spectrum, λ_{max} , nm (ϵ): 206 (24000), 220 (20000), 280 (22000), 294 (22000), 315 (15000). ¹H NMR spectrum, δ , ppm: 1.64–2.30 m (15H, Ad), 3.90 s (3H, MeO), 6.42-8.08 m (7H, H_{arom}), 8.56 s (1H, CH=N), 9.95 s (1H, OH). Found, %: C 72.34; H 6.68; N 2.85. M 431.4. C₂₆H₂₇NO₅. Calculated, %: C 72.04; H 6.28; N 3.23. M 433.5.

Ethyl 4-{4-(E)-4-[(adamantan-1-ylcarbonyloxy)-3-methoxyphenyl]methylideneamino}benzoate (IIIp). Yield 90%, mp 150–151°C. IR spectrum, v, cm⁻¹: 3092, 3086, 3072, 3040, 3027 (C-H_{arom}); 2942, 2904, 2851 (C-H_{aliph}); 1749, 1698 (C=O); 1631 (C=N); 1600, 1593, 1504 (C=C_{arom}); 1460 (CH₂); 1274, 1215, 1192, 1184, 1160, 1148, 1118, 1101, 1043, 1033 (C-O); 868, 856, 836, 817, 804, 776, 740, 731, 699, 680 (C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 205 (22000), 221 (20000), 280 (22000), 294 (21000), 315 (15000). ¹H NMR spectrum, δ, ppm: 1.44 t (3H, Me), 1.66–2.30 m (15H, Ad), 3.92 s (3H, MeO), 4.42 q (2H, CH₂), 7.09-8.18 m (7H, H_{arom}), 8.40 s (1H, CH=N). Found, %: C 73.12; H 6.88; N 2.74. M 452.2. C₂₈H₃₁NO₅. Calculated, %: C 72.86; H 6.77; N 3.03. M 461.5.

Butyl 4-{4-(*E*)-4-[(adamantan-1-ylcarbonyloxy)-3-methoxyphenyl]methylideneamino}benzoate (IIIq). Yield 91%, mp 108–109°C. IR spectrum, v, cm⁻¹: 3091, 3083, 3064, 3042, 3007 (C–H_{arom}); 2959, 2932, 2920, 2905, 2850 (C–H_{aliph}); 1756, 1712 (C=O); 1631 (C=N); 1590, 1504 (C=C_{arom}); 1464, 1456 (CH₂); 1274, 1217, 1193, 1180, 1150, 1116, 1094, 1045, 1038 (C–O); 869, 848, 819, 794, 780, 770, 741, 730, 702, 677 (C–H_{arom}). UV spectrum, λ_{max} , nm (ε): 204 (22000), 223 (20000), 280 (21000), 294 (21000), 314 (15000). ¹H NMR spectrum, δ , ppm: 1.00 t (3H, Me), 1.16–2.30 m (19H, CH₂CH₂, Ad), 3.92 s (3H, MeO), 4.34 q (2H, CH₂O), 7.02–8.17 m (7H, H_{arom}), 8.39 s (1H, CH=N). Found, %: C 73.85; H 7.43; N 2.50. *M* 475.7. C₃₀H₃₅NO₅. Calculated, %: C 73.59; H 7.21; N 2.86. *M* 489.6.

(*E*)-2-Methoxy-4-(naphthalen-1-yliminomethyl)phenyl adamantane-1-carboxylate (IIIr). Yield 87%, mp 173–174°C. IR spectrum, v, cm⁻¹: 3090, 3055, 3048, 3006 (C–H_{arom}); 2936, 2905, 2887, 2850 (CH_{aliph}); 1751 (C=O); 1626 (C=N); 1600, 1584, 1569, 1531, 1510 (C=C_{arom}); 1464, 1449 (CH₂); 1285, 1261, 1216, 1197, 1180, 1157, 1109, 1042 (C–O); 896, 877, 856, 830, 804, 794, 776, 766, 740, 734, 680 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 210 (27000), 230 (26000), 260 (10000), 290 (6000), 310 (6000), 344 (6000). ¹H NMR spectrum, δ , ppm: 1.69–2.42 m (15H, Ad), 3.95 s (3H, MeO), 6.98–8.44 m (10H, H_{arom}), 8.51 s (1H, CH=N). Found, %: C 79.63; H 6.79; N 2.87. *M* 425.1. C₂₉H₂₉NO₃. Calculated, %: C 79.24; H 6.65; N 3.19. *M* 439.5.

(*E*)-2-Methoxy-4-(naphthalen-2-yliminomethyl)phenyl adamantane-1-carboxylate (IIIs). Yield 88%, mp 134–135°C. IR spectrum, v, cm⁻¹: 3095, 3070, 3053, 3011 (C–H_{arom}); 2906, 2851 (C–H_{aliph}); 1750 (C=O); 1626 (C=N); 1600, 1590, 1504 (C=C_{arom}); 1464, 1451 (CH₂); 1274, 1260, 1211, 1193, 1179, 1147, 1122, 1111, 1040 (C–O); 890, 872, 841, 819, 790, 745, 737, 678 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 224 (28000), 270 (17000), 324 (11000), 356 (8000). ¹H NMR spectrum, δ , ppm: 1.66–2.42 m (15H, Ad), 3.95 s (3H, MeO), 6.90–8.46 m (10H, H_{arom}), 8.50 s (1H, CH=N). Found, %: C 79.57; H 6.72; N 2.80. *M* 428.4. C₂₉H₂₉NO₃. Calculated, %: C 79.24; H 6.65; N 3.19. *M* 439.5.

(*E*)-4-[(1-Bromonaphthalen-2-yl)iminomethyl]-2-methoxyphenyl adamantane-1-carboxylate (IIIf). Yield 92%, mp 178–179°C. IR spectrum, v, cm⁻¹: 3090, 3058, 3040, 3022, 3001 (C–H_{arom}); 2940, 2903, 2850 (C–H_{aliph}); 1746 (C=O); 1630 (C=N); 1615, 1600, 1588, 1504 (C=C_{arom}); 1462, 1450 (CH₂); 1276, 1259, 1218, 1189, 1151, 1119, 1050, 1041 (C–O); 864, 852, 810, 790, 760, 744, 730, 680 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (23000), 230 (42000), 244 (25000), 270 (24000), 310 (11000), 330 (10000). ¹H NMR spectrum, δ , ppm: 1.64–2.42 m (15H, Ad), 3.96 s (3H, MeO), 7.04–8.40 m (9H, H_{arom}), 8.49 s (1H, CH=N). Found, %: C 67.52; H 5.63; Br 15.03; N 2.28. *M* 499.3. C₂₉H₂₈BrNO₃. Calculated, %: C 67.18; H 5.44; Br 15.41; N 2.70. *M* 518.4. (*E*)-2-Ethoxy-4-(hexadecyliminomethyl)phenyl adamantane-1-carboxylate (IVa). Yield 86%, mp 67– 68°C. IR spectrum, v, cm⁻¹: 3072, 3053, 3008 (C–H_{arom}); 2918, 2850 (C–H_{aliph}); 1742 (C=O); 1646 (C=N); 1601, 1590, 1512 (C=C_{arom}); 1470, 1453 (CH₂); 1294, 1264, 1217, 1205, 1167, 1117, 1105, 1055, 1043 (C–O); 874, 846, 832, 824, 804, 783, 732, 725 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 208 (15000), 221 (13000), 253 (9000), 300 (400). ¹H NMR spectrum, δ , ppm: 0.92 t (3H, Me), 1.10–2.16 m [46H, Ad, Me, (CH₂)₁₄], 3.63 t (2H, CH₂N), 4.14 q (2H, CH₂), 7.06–7.50 m (3H, H_{arom}), 8.23 s (1H, CH=N). Found, %: C 78.76; H 10.46; N 2.19. *M* 537.6. C₃₆H₅₇NO₃. Calculated, %: C 78.35; H 10.41; N 2.54. *M* 551.8.

(*E*)-2-Ethoxy-4-(octadecyliminomethyl)phenyl adamantane-1-carboxylate (IVb). Yield 91%, mp 68–69°C. IR spectrum, v, cm⁻¹: 3081, 3042, 3008 (C–H_{arom}); 2918, 2850 (C–H_{aliph}); 1742 (C=O); 1647 (C=N); 1601, 1589, 1512 (C=C_{arom}); 1470, 1453 (CH₂); 1294, 1264, 1218, 1205, 1167, 1117, 1105, 1055, 1043 (C–O); 870, 848, 836, 819, 803, 788, 765, 730, 718, 680 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 207 (14000), 222 (13000), 254 (8000), 300 (400). ¹H NMR spectrum, δ , ppm: 0.92 t (3H, Me), 1.08–2.14 m [50H, Ad, Me, (CH₂)₁₆], 3.62 t (2H, CH₂N), 4.14 q (2H, CH₂), 7.06–7.50 m (3H, H_{arom}), 8.23 s (1H, CH=N). Found, %: C 79.03; H 10.73; N 2.02. *M* 566.0. C₃₈H₆₁NO₃. Calculated, %: C 78.70; H 10.61; N 2.42. *M* 579.9.

(*E*)-4-(Cyclohexyliminomethyl)-2-ethoxyphenyl adamantane-1-carboxylate (IVc). Yield 87%, mp 93– 94°C. IR spectrum, v, cm⁻¹: 3080, 3059, 3005 (C–H_{arom}); 2981, 2924, 2907, 2851 (C–H_{aliph}); 1746 (C=O); 1644 (C=N); 1592, 1513 (C=C_{arom}); 1476, 1448 (CH₂); 1291, 1270, 1222, 1199, 1166, 1076, 1057, 1041 (C–O); 886, 866, 840, 835, 810, 789, 760, 740, 731, 677 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 207 (15000), 223 (12000), 254 (8000), 300 (400). ¹H NMR spectrum, δ , ppm: 1.10–2.14 m (29H, Ad, Me, C₆H₁₁), 4.14 q (2H, CH₂), 7.02–7.46 m (3H, H_{arom}), 8.22 s (1H, CH=N). Found, %: C 76.57; H 8.63; N 3.11. *M* 392.5. C₂₆H₃₅NO₃. Calculated, %: C 76.25; H 8.61; N 3.42. *M* 409.6.

(*E*)-4-[1-(1-Adamantyl)ethyliminomethyl]-2ethoxyphenyl adamantane-1-carboxylate (IVd). Yield 90%, mp 153–154°C. IR spectrum, v, cm⁻¹: 3070, 3052, 3007 (C–H_{arom}); 1980, 2935, 2905, 2850, 2811 (C–H_{aliph}); 1748 (C=O); 1644 (C=N); 1600, 1589, 1511 (C=C_{arom}); 1476, 1452 (CH₂); 1290, 1263, 1215, 1198, 1181, 1165, 1116, 1101, 1053, 1045 (C–O); 868, 842, 818, 800, 788, 760, 731, 678 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 207 (16000), 222 (14000), 254 (10000), 300 (500). ¹H NMR spectrum, δ , ppm: 1.14 d (3H, Me), 1.42 t (3H, Me), 1.60–2.25 m (30H, Ad), 2.84 q (1H, CH), 4.15 q (2H, CH₂), 6.98–7.48 m (3H, H_{arom}), 8.19 s (1H, CH=N). Found, %: C 78.80; H 8.93; N 2.34. *M* 470.3. C₃₂H₄₃NO₃. Calculated, %: C 78.49; H 8.85; N 2.68. *M* 489.7.

(*E*)-2-Ethoxy-4-(phenyliminomethyl)phenyl adamantane-1-carboxylate (IVe). Yield 86%, mp 88– 89°C. IR spectrum, v, cm⁻¹: 3089, 3074, 3054, 3032, 3028, 3019, 3006 (C–H_{arom}); 2986, 2906, 2851 (C–H_{aliph}); 1746 (C=O); 1626 (C=N); 1599, 1585, 1511 (C=C_{arom}); 1468, 1449 (CH₂); 1291, 1274, 1214, 1180, 1159, 1118, 1105, 1042 (C–O); 872, 860, 853, 840, 828, 762, 755, 730, 693, 680 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (32000), 222 (23000), 268 (14000), 316 (12000). ¹H NMR spectrum, δ , ppm: 1.40 t (3H, Me), 1.63–2.36 m (15H, Ad), 4.16 q (2H, CH₂), 6.90–7.65 m (8H, H_{arom}), 8.38 s (1H, CH=N). Found, %: C 77.63; H 7.30; N 3.19. *M* 394.4. C₂₆H₂₉NO₃. Calculated, %: C 77.39; H 7.24; N 3.47. *M* 403.5.

(*E*)-2-Ethoxy-4-[(4-methylphenyl)iminomethyl]phenyl adamantane-1-carboxylate (IVf). Yield 86%, mp 149–150°C. IR spectrum, v, cm⁻¹: 3091, 3082, 3068, 3040, 3032, 3003 (C–H_{arom}); 2855, 2922, 2906, 2846 (C–H_{aliph}); 1742 (C=O); 1626 (C=N); 1601, 1581, 1511 (C=C_{arom}); 1476, 1446 (CH₂); 1290, 1265, 1216, 1194, 1160, 1116, 1104, 1053, 1046 (C–O); 866, 855, 840, 818, 796, 780, 771, 742, 731, 720, 709, 680 (C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 202 (40000), 224 (38000), 270 (28000), 322 (28000). ¹H NMR spectrum, δ , ppm: 1.40 t (3H, Me), 1.62–2.15 m (15H, Ad), 2.33 s (3H, Me), 4.14 q (2H, CH₂), 7.02–7.74 m (7H, H_{arom}), 8.58 s (1H, CH=N). Found, %: C 77.96; H 7.63; N 3.04. *M* 409.2. C₂₇H₃₁NO₃. Calculated, %: C 77.67; H 7.48; N 3.35. *M* 417.5.

(*E*)-4-[(Biphenyl-2-yl)iminomethyl]-2-ethoxyphenyl adamantane-1-carboxylate (IVg). Yield 88%, mp 39–40°C. IR spectrum, v, cm⁻¹: 3090, 3080, 3059, 3034, 3020 (C–H_{arom}); 2929, 2906, 2852 (C–H_{aliph}); 1752 (C=O); 1628 (C=N); 1599, 1588, 1509 (C=C_{arom}); 1478, 1452 (CH₂); 1276, 1212, 1193, 1170, 1158, 1120, 1043 (C–O); 872, 845, 820, 774, 752, 737, 699, 679 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (23000), 264 (13000), 318 (12000). ¹H NMR spectrum, δ , ppm: 1.41 t (3H, Me), 1.68–2.40 m (15H, Ad), 4.14 q (2H, CH₂), 6.92–7.62 m (12H, H_{arom}), 8.45 s (1H, CH=N). Found, %: C 80.47; H 7.08; N 2.65. *M* 468.3. C₃₂H₃₃NO₃. Calculated, %: C 80.14; H 6.94; N 2.92. *M* 479.6.

(*E*)-4-[(Biphenyl-4-yl)iminomethyl]-2-ethoxyphenyl adamantane-1-carboxylate (IVh). Yield 90%, mp 168–169°C. IR spectrum, v, cm⁻¹: 3089, 3074, 3061, 3032 (C–H_{arom}); 2940, 2021, 2904, 2851 (C–H_{aliph}); 1743 (C=O); 1630 (C=N); 1601, 1582, 1511 (C=C_{arom}); 1482, 1450 (CH₂); 1289, 1250, 1216, 1195, 1180, 1160, 1115, 1103, 1043 (C–O); 868, 851, 837, 822, 782, 762, 740, 734, 699, 681 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (21000), 268 (14000), 318 (10000). ¹H NMR spectrum, δ , ppm: 1.42 t (3H, Me), 1.68–2.40 m (15H, Ad), 4.14 q (2H, CH₂), 6.96–7.72 m (12H, H_{arom}), 8.45 s (1H, CH=N). Found, %: C 80.40; H 7.12; N 2.72. *M* 466.6. C₃₂H₃₃NO₃. Calculated, %: C 80.14; H 6.94; N 2.92. *M* 479.6.

(*E*)-4-[(4-Bromophenyl)iminomethyl]-2-ethoxyphenyl adamantane-1-carboxylate (IVi). Yield 92%, mp 166–167°C. IR spectrum, v, cm⁻¹: 3088, 3072, 3045, 3003 (C–H_{arom}); 2924, 2906, 2848 (C–H_{aliph}); 1740 (C=O); 1625 (C=N); 1602, 1589, 1575, 1510 (C=C_{arom}); 1481, 1476, 1449 (CH₂); 1290, 1264, 1216, 1194, 1180, 1160, 1115, 1105, 1060, 1054, 1007 (C–O); 865, 852, 829, 819, 778, 762, 740, 709, 881 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (25000), 224 (22000), 266 (18000), 320 (18000). ¹H NMR spectrum, δ , ppm: 1.42 t (3H, Me), 1.54–2.16 m (15H, Ad), 4.15 q (2H, CH₂), 7.00–7.74 m (7H, H_{arom}), 8.58 s (1H, CH=N). Found, %: C 65.11; H 5.89; Br 16.21; N 2.60. *M* 470.5. C₂₆H₂₈BrNO₃. Calculated, %: C 64.73; H 5.85; Br 16.56; N 2.90. *M* 482.4.

(*E*)-2-Ethoxy-4-[(2-hydroxyphenyl)iminomethyl]phenyl adamantane-1-carboxylate (IVj). Yield 86%, mp 128–129°C. IR spectrum, v, cm⁻¹: 3425, 3407 (OH); 3089, 3077, 3042, 3002 (C–H_{arom}); 2924, 2902, 2850 (C–H_{aliph}); 1745 (C=O); 1624 (C=N); 1602, 1592, 1582, 1508 (C=C_{arom}); 1485, 1477, 1449 (CH₂); 1292, 1274, 1260, 1215, 1178, 1157, 1117, 1106, 1049, 1042 (C–O); 876, 870, 843, 822, 815, 750, 742, 730, 678 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (33000), 234 (15000), 284 (12000), 344 (10000). ¹H NMR spectrum, δ , ppm: 1.42 t (3H, Me), 1.62– 2.22 m (15H, Ad), 4.14 q (2H, CH₂), 6.54–7.88 m (7H, H_{arom}), 8.67 s (1H, CH=N), 8.96 s (1H, OH). Found, %: C 74.48; H 7.08; N 2.98. *M* 404.8. C₂₆H₂₉NO₄. Calculated, %: C 74.44; H 6.97; N 3.34. *M* 419.5.

(*E*)-2-Ethoxy-4-[(4-phenoxyphenyl)iminomethyl]phenyl adamantane-1-carboxylate (IVk). Yield 88%, mp 162–163°C. IR spectrum, v, cm⁻¹: 3091, 3074, 3066, 3053, 3040, 3010 (C–H_{arom}); 2933, 2905, 2853 (C–H_{aliph}); 1738 (C=O); 1624 (C=N); 1601, 1589, 1512 (C=C_{arom}); 1488, 1453 (CH₂); 1290, 1261, 1238, 1214, 1195, 1162, 1113, 1103, 1055, 1039 (C–O); 866, 858, 851, 829, 798, 772, 741, 694, 680 (C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 200 (50000), 225 (34000), 272 (20000), 327 (20000). ¹H NMR spectrum, δ , ppm: 1.42 t (3H, Me), 1.60–2.25 m (15H, Ad), 4.14 q (2H, CH₂), 6.80–7.68 m (12H, H_{arom}), 8.49 s (1H, CH=N). Found, %: C 77.86; H 6.83; N 2.57. *M* 483.7. C₃₂H₃₃NO₄. Calculated, %: C 77.55; H 6.71; N 2.83. *M* 495.6.

(*E*)-4-[(4-Acetylphenyl)iminomethyl]-2-ethoxyphenyl adamantane-1-carboxylate (IVI). Yield 86%, mp 77–78°C. IR spectrum, v, cm⁻¹: 3064, 3045, 3002 (C–H_{arom}); 2977, 2942, 2906, 2852 (C–H_{aliph}); 1749, 1681 (C=O); 1628 (C=N); 1593, 1509 (C=C_{arom}); 1470, 1452 (CH₂); 1271, 1216, 1199, 1180, 1157, 1120, 1042 (C–O); 855, 831, 787, 766, 743, 730, 676 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (29000), 221 (20000), 254 (10000), 308 (14000). ¹H NMR spectrum, δ , ppm: 1.42 t (3H, Me), 1.55–2.25 m (15H, Ad), 3.74 s (3H, Me), 4.14 q (2H, CH₂), 6.90–8.12 m (7H, H_{arom}), 8.46 s (1H, CH=N). Found, %: C 75.59; H 7.12; N 2.83. *M* 433.7. C₂₈H₃₁NO₄. Calculated, %: C 75.48; H 7.01; N 3.14. *M* 445.6.

(*E*)-2-Ethoxy-4-[4-(1-oxopropyl)phenyliminomethyl]phenyl adamantane-1-carboxylate (IVm). Yield 85%, mp 87–88°C. IR spectrum, v, cm⁻¹: 3090, 3054, 3041, 3006 (C–H_{arom}); 2980, 2940, 2902, 2851 (C–H_{aliph}); 1752, 1652 (C=O); 1625 (C=N); 1594, 1585, 1558, 1520 (C=C_{arom}); 1468, 1453, 1442 (CH₂); 1241, 1184, 1170, 1135, 1079, 1039 (C–O); 880, 839, 810, 796, 750, 724, 878 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (29000), 222 (20000), 254 (11000), 306 (14000). ¹H NMR spectrum, δ , ppm: 1.10–1.60 m (6H, Me), 1.60–2.24 m (15H, Ad), 2.94 q (2H, CH₂), 4.14 q (2H, CH₂), 6.90–8.06 m (7H, H_{arom}), 8.44 s (1H, CH=N). Found, %: C 76.19; H 7.36; N 2.80. *M* 447.3. C₂₉H₃₃NO₄. Calculated, %: C 75.79; H 7.24; N 3.05. *M* 459.6.

3-{(*E***)-[4-(Adamantan-1-ylcarbonyloxy)-3-ethoxyphenyl]methylideneamino}benzoic acid** (**IVn**). Yield 90%, mp 197–198°C. IR spectrum, v, cm⁻¹: 2050–3570 (O–H); 3087, 3065, 3045, 3032, 3005 (C–H_{arom}); 2934, 2905, 2854 (C–H_{aliph}); 1747, 1685 (C=O); 1629 (C=N); 1601, 1578, 1511 (C=C_{arom}); 1477, 1449 (CH₂); 1292, 1279, 1263, 1218, 1197,

1180, 1162, 1116, 1103, 1052, 1039 (C–O); 870, 854, 816, 758, 730, 687, 673 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (18000), 223 (30000), 250 (10000), 306 (5000). ¹H NMR spectrum, δ , ppm: 1.45 t (3H, Me), 1.68–2.33 m (15H, Ad), 4.14 q (2H, CH₂), 6.92–8.04 m (7H, H_{arom}), 8.58 s (1H, CH=N), 9.96 s (1H, OH). Found, %: C 72.84; H 6.62; N 2.87. *M* 445.6. C₂₇H₂₉NO₅. Calculated, %: C 72.46; H 6.53; N 3.13. *M* 447.5.

4-{(E)-[4-(Adamantan-1-ylcarbonyloxy)-3-ethoxyphenyl]methylideneamino}benzoic acid (IVo). Yield 88%, mp 267–268°C. IR spectrum, v, cm⁻¹: 2200–3650 (O–H); 3080, 3068, 3040, 3006 (C-H_{arom}); 2940, 2911, 2851 (C-H_{aliph}); 1745, 1686 (C=O); 1635 (C=N); 1600, 1582, 1512 (C=C_{arom}); 1480, 1451 (CH₂); 1291, 1263, 1215, 1195, 1179, 1162, 1114, 1102, 1050, 1040 (C-O); 872, 849, 822, 812, 770, 756, 734, 700, 678 (δC-H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 205 (23000), 220 (20000), 280 (22000), 295 (22000), 314 (15000). ¹H NMR spectrum, δ, ppm: 1.45 t (3H, Me), 1.66–2.30 m (15H, Ad), 4.14 g (2H, CH₂), 6.42–8.08 m (7H, H_{arom}), 8.56 s (1H, CH=N), 9.96 s (1H, OH). Found, %: C 72.73; H 6.60; N 3.04. M 446.1. C₂₇H₂₉NO₅. Calculated, %: C 72.46; H 6.53; N 3.13. M 447.5.

Ethyl 4-{(*E*)-[4-(adamantan-1-ylcarbonyloxy)-3-ethoxyphenyl]methylideneamino}benzoate (IVp). Yield 87%, mp 112–113°C. IR spectrum, v, cm⁻¹: 3090, 3084, 3072, 3040, 3020 (C–H_{arom}); 2944, 2905, 2854 (C–H_{aliph}); 1744, 1716 (C=O); 1631 (C=N); 1600, 1585, 1514 (C=C_{arom}); 1477, 1452 (CH₂); 1274, 1218, 1193, 1188, 1164, 1114, 1100, 1054, 1041 (C–O); 866, 853, 838, 816, 804, 772, 760, 732, 699, 681 (C–H_{arom}). UV spectrum, λ_{max} , nm (ε): 204 (22000), 221 (19000), 280 (22000), 292 (21000), 314 (14000). ¹H NMR spectrum, δ, ppm: 1.15–1.58 m (6H, Me), 1.66–2.30 m (15H, Ad), 4.10–4.64 q (4H, CH₂), 7.08–8.16 m (7H, H_{arom}), 8.41 s (1H, CH=N). Found, %: C 73.54; H 7.13; N 2.63. *M* 475.3. C₂₉H₃₃NO₅. Calculated, %: C 73.24; H 6.99; N 2.95. *M* 475.6.

Butyl 4-{(*E*)-[4-(adamantan-1-ylcarbonyloxy)-3-ethoxyphenyl]methylideneamino}benzoate (IVq). Yield 89%, mp 88–89°C. IR spectrum, v, cm⁻¹: 3090, 3082, 3062, 3040, 3008 (C–H_{arom}); 2956, 2940, 2907, 2852 (C–H_{aliph}); 1752, 1715 (C=O); 1631 (C=N); 1601, 1587, 1513 (C=C_{arom}); 1464, 1452 (CH₂); 1274, 1267, 1193, 1180, 1158, 1116, 1102, 1042 (C–O); 872, 846, 823, 770, 741, 730, 702, 675 (δC–H_{arom}). UV spectrum, λ_{max} , nm (ε): 204 (23000), 224 (20000), 280 (21000), 294 (21000), 315 (15000). ¹H NMR spectrum, δ , ppm: 0.90–1.62 t (6H, Me), 1.18–2.30 m (19H, CH₂CH₂, Ad), 3.95–4.60 q (4H, CH₂O), 7.04–8.18 m (7H, H_{arom}), 8.38 s (1H, CH=N). Found, %: C 74.23; H 7.50; N 2.44. *M* 492.0. C₃₁H₃₇NO₅. Calculated, %: C 73.93; H 7.41; N 2.78. *M* 503.6.

(*E*)-2-Ethoxy-4-(naphthalen-1-yliminomethyl)phenyl adamantane-1-carboxylate (IVr). Yield 85%, mp 108–109°C. IR spectrum, v, cm⁻¹: 3088, 3065, 3051, 3003 (C–H_{arom}); 2914, 2899, 2851 (C–H_{aliph}); 1747 (C=O); 1626 (C=N); 1598, 1589, 1572, 1504 (C=C_{arom}); 1474, 1452 (CH₂); 1277, 1264, 1216, 1197, 1173, 1161, 1116, 1103, 1050, 1041 (C–O); 876, 840, 822, 812, 803, 789, 779, 771, 740, 678 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 209 (27000), 232 (27000), 260 (10000), 290 (6000), 311 (6000), 344 (6000). ¹H NMR spectrum, δ , ppm: 1.42 t (3H, Me), 1.70–2.42 m (15H, Ad), 4.14 q (2H, CH₂), 6.96–8.44 m (10H, H_{arom}), 8.52 s (1H, CH=N). Found, %: C 79.78; H 7.00; N 2.65. *M* 441.8. C₃₀H₃₁NO₃. Calculated, %: C 79.44; H 6.89; N 3.09. *M* 453.6.

(*E*)-2-Ethoxy-4-(naphthalen-2-yliminomethyl)phenyl adamantane-1-carboxylate (IVs). Yield 88%, mp 133–134°C. IR spectrum, v, cm⁻¹: 3070, 3050, 3030 (C–H_{arom}); 2032, 2904, 2951 (C–H_{aliph}); 1751 (C=O); 1624 (C=N); 1598, 1579, 1506 (C=C_{arom}); 1475, 1452 (CH₂); 1288, 1261, 1248, 1214, 1196, 1171, 1154, 1116, 1102, 1041 (C–O); 884, 860, 828, 808, 749, 730, 678 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 223 (27000), 272 (18000), 324 (12000), 355 (8000). ¹H NMR spectrum, δ , ppm: 1.45 t (3H, Me), 1.64–2.42 m (15H, Ad), 4.14 q (2H, CH₂), 6.90– 8.46 m (10H, H_{arom}), 8.51 s (1H, CH=N). Found, %: C 79.81; H 7.09; N 2.78. *M* 444.5. C₃₀H₃₁NO₃. Calculated, %: C 79.44; H 6.89; N 3.09. *M* 453.6.

(*E*)-4-[(1-Bromonaphthalen-2-yl)iminomethyl]-2-ethoxyphenyl adamantane-1-carboxylate (IVt). Yield 91%, mp 101–102°C. IR spectrum, v, cm⁻¹: 3092, 3064, 3040, 3003 (C–H_{arom}); 2932, 2904, 2851 (C–H_{aliph}); 1743 (C=O); 1628 (C=N); 1619, 1601, 1583, 1511 (C=C_{arom}); 1477, 1448 (CH₂); 1290, 1258, 1218, 1199, 1168, 1116, 1103, 1051, 1040 (C–O); 870, 858, 840, 799, 762, 740, 732, 678 (C–H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 204 (24000), 230 (44000), 245 (25000), 270 (25000), 310 (11000), 332 (10000). ¹H NMR spectrum, δ , ppm: 1.45 t (3H, Me), 1.65– 2.42 m (15H, Ad), 4.14 q (2H, CH₂), 7.05–8.40 m (9H, H_{arom}), 8.50 s (1H, CH=N). Found, %: C 67.52; H 5.63; Br 15.03; N 2.28. *M* 499.3. C₂₉H₂₈BrNO₃. Calculated, %: C 67.18; H 5.44; Br 15.41; N 2.70. *M* 518.4.

Compounds Va and Vb (general procedure). *a*. A mixture of 5 mmol of Schiff base **IIIs**, 5 mmol of cyclohexane-1,3-dione or 5,5-dimethylcyclohexane-1,3-dione (dimedone) in 20 ml of ethanol was heated for 30 min under reflux. After cooling, the precipitate was filtered off, washed on a filter with two portions of diethyl ether to remove unreacted initial compounds, and dried under reduced pressure. The product was sufficiently pure, and no additional purification was necessary.

b. A mixture of 5 mmol of aldehyde **Ia**, 5 mmol of naphthalen-2-amine (**IIs**), and 5 mmol of the corresponding diketone in 20 ml of ethanol was heated for 10–15 min under reflux. After cooling, the precipitate was filtered off, washed on a filter with two portions of diethyl ether to remove unreacted initial compounds, and dried under reduced pressure.

2-Methoxy-4-(11-oxo-7,8,9,10,11,12-hexahydrobenzo[a]acridin-12-yl)phenyl adamantane-1-carboxylate (Va). Yield 70 (a), 78% (b); mp 346–348°C. IR spectrum, v, cm⁻¹: 3440 (NH), 3065 (C–H_{arom}), 2960 (C-H_{aliph}), 1730 (C=O), 1570, 1520, 1400, 1270 (C–O), 1050, 830, 750 (δ C–H_{arom}). UV spectrum, λ_{max} , nm (ε): 216 (29000), 234 (34000), 269 (10000), 281 (14000), 290 (14000), 325 (3000), 340 (12000), 370 (8000). ¹H NMR spectrum (DMSO- d_6), δ , ppm: 1.70 br.s (6H, CH₂ in Ad), 1.95 br.s (6H, CH₂ in Ad), 2.00 m (2H, 8-H), 2.05 br.s (3H, CH in Ad), 2.30 m (2H, 9-H), 2.60 m (2H, 10-H), 3.70 s (3H, OMe), 5.90 s (1H, 12-H), 6.50 d (1H, 5'-H, J = 9 Hz), 6.60 d (1H, 3'-H, J = 9 Hz), 7.20 s (1H, 6'-H), 7.28 d (1H, 3'-H)5-H, J = 9 Hz), 7.30 t (1H, 2-H, J = 9 Hz), 7.38 t (1H, 3-H, J = 9 Hz, 7.66 d (1H, 6-H, J = 9 Hz), 7.72 d (1H, 4-H, J = 9 Hz), 7.90 d (1H, 7-H, J = 9 Hz), 9.45 s (1H, NH). Found, %: C 78.52; H 6.43; N 2.40. C₃₅H₃₅NO₄. Calculated, %: C 78.77; H 6.61; N 2.62.

4-(9,9-Dimethyl-11-oxo-7,8,9,10,11,12-hexahydrobenzo[*a*]acridin-12-yl)-2-methoxyphenyl adamantane-1-carboxylate (Vb). Yield 75 (*a*), 84% (*b*); mp 346-348°C. IR spectrum, v, cm⁻¹: 3445 (NH); 3070 (C-H_{arom}); 2950 (C-H_{aliph}); 1740 (C=O); 1565, 1520, 1410, 1280 (C-O); 1030, 850, 720 (δ C-H_{arom}). UV spectrum, λ_{max} , nm (ϵ): 218 (30000), 233 (35000), 270 (10000), 281 (15000), 290 (16000), 326 (3000), 340 (14000), 370 (8000). ¹H NMR spectrum (DMSO-*d*₆), δ , ppm: 0.95 s and 1.10 s (3H each, 9-Me), 1.75 br.s (6H, CH₂ in Ad), 1.95 br.s (6H, CH₂ in Ad), 2.15 s (2H, 8-H),

2.30 m (2H, 10-H), 3.70 s (3H, OMe), 5.85 s (1H, 12-H), 6.50 d (1H, 5'-H, J = 9 Hz), 6.60 d (1H, 3'-H, J = 9 Hz), 7.15 s (1H, 6'-H), 7.25 d (1H, 5-H, J = 9 Hz), 7.30 t (1H, 2-H, J = 9 Hz), 7.38 t (1H, 3-H, J = 9 Hz), 7.68 d (1H, 6-H, J = 9 Hz), 7.73 d (1H, 4-H, J = 9 Hz), 7.92 d (1H, 7-H, J = 9 Hz), 9.35 s (1H, NH). Found, %: C 79.41; H 6.83; N 2.60. C₃₇H₃₉NO₄. Calculated, %: C 79.12; H 7.00; N 2.49.

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