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SYNTHESIS AND PROPERTIES OF 6,7,8-SUBSTITUTED 2-(4-OXO-3,4-DIHYDRO-2-QUINAZOLINYL)-ACETONITRILES

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2-(4-Oxo-3,4-dihydro-2-quinazolinyl)acetonitriles have been obtained by the interaction of α-cyanoethylthioiminoacetate with substituted anthranilic acids. Prototropy became apparent in the series of synthesized compounds. Reactions of the 2-(4-oxo-3,4-dihydro-2-quinazolinyl)acetonitriles have been carried out with (hetero)aromatic aldehydes leading to the formation of 3-aryl-2-(4-oxo-3,4-dihydro-2-quinazolinyl)acrylonitriles.

Keywords: anthranilic acid, 3-aryl-2-(4-oxo-3,4-dihydro-2-quinazolinyl)acrylonitrile, 2-(4-oxo-3,4-dihydro-2-quinazolinyl)acetonitrile, 4-oxo-3,4-dihydroquinazolinone, 3-pyridyl-2-(4-oxo-3,4-dihydro-2-quinazolinyl)acrylonitrile, α-cyanothioacetamide, prototropy.

2-(4-Oxo-3,4-dihydro-2-quinazolinyl)acetonitrile (**1a**) is widely used in the synthesis of dyestuffs of various classes, including styrenes [1], azo dyes [2-5], coumarins [6], and isoindolines [7,8].

Derivatives of 4-oxo-3,4-dihydroquinazolines display significant antimicrobial activity [9]. The condensation products of 3-phenyl- and 3-pyridyl-2-methyl-4(3H)-quinazolinones with aromatic aldehydes may be used for the treatment of several neurological disorders (Parkinson's disease, epilepsy, ischemia) [10]. It is known that certain styrylquinazolinones are anticancer medicines [11]. These facts caused our interest in the study of the properties and reactivity of derivatives of 4-oxo-3,4-dihydroquinazolines.

Nitrile **1a** was obtained for the first time in 1962 by the interaction of anthranilic acid with the extremely unstable and difficultly available ethyliminocyanoacetate [12]. Methods of synthesis for this compound have been patented from anthranilic acid amide and cyanoacetic acid ethyl ester [13] or isatoic anhydride and cyanoacetic acid amide [14] in an inert atmosphere. The use of substituted amides of anthranilic and cyanoacetic acids enabled the synthesis of a large number of different 3,5,6,7,8-substituted 2-(4-oxo-3,4-dihydro-2-quinazolinyl)acetonitriles [13-15]. Syntheses of nitrile **1a** and its 3-N-derivatives have also been described by the recyclization of 2-cyanomethyl-3,1-benzoxazin-4(H)-one with formamide [9,16], ammonium acetate, and substituted anilines [17-19]. It is impossible to consider these methods as being preparative due to the required multistage synthesis of the initial 2-cyanomethylbenzoxazinone. Also the preparation of nitrile **1a** by the sequential bromination and cyanation of 2-methyl-4(3H)-quinazolinones is laborious [20]. In our opinion the most acceptable method of synthesis was described by the authors of [21], who obtained compound **1a** in good yield by the interaction of anthranilic acid with α-cyanothioacetamide (**2**) with its methylthio derivative.

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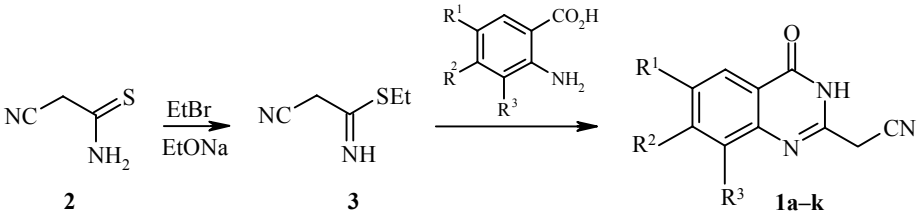
Since in [21] the synthesis of only nitrile **1a** itself was described we decided to determine the scope of applicability of this method, introducing into the reaction anthranilic acids with substituents of various electronic nature.

The substituted anthranilic acids were introduced into an alcoholic (methanolic, ethanolic) solution of α-cyanoiminothioacetic acid ethyl ester (**3**) and refluxed, checking the reaction chromatographically. Solution of the anthranilic acid was observed and after a certain time a precipitate of the corresponding nitrile **1** occurred, as a rule in chromatographically pure form. The reaction proceeds readily both in ethanol [21] and in methanol in which the starting materials are better soluble. Anthranilic acids introduced into the reaction contained electron-donating [5-Me, 5-Et, 5-*iso*-Pr, 3,5-$(Me)_2$, 4,5-$(MeO)_2$, N-Me] and electron-withdrawing (5-F, -Cl, -Br, -I, -CF_3, NO_2, 3,5-Cl_2, 3-Cl) substituents, and also anthranilic acid itself.



2 **3** **1a–k**

1 a, k R^1 = H, **b, e** R^1 = Me, **c** R^1 = Et, **d** R^1 = *i*-Pr, **f** R^1 = OMe, **g** R^1 = Br, **h** R^1 = Cl, **i** R^1 = I, **j** R^1 = F; **a–e, g–j** R^2 = H, **f** R^2 = OMe, **k** R^2 = Cl; **a–d, f–k** R^3 = H, **e** R^3 = Me

Compounds obtained previously were **1a** [21], **1g** [17], **1b,h** and 2-(6-nitro-4-oxo-3,4-dihydro-2-quinazolinyl)acetonitrile [13].

It should be mentioned that in numerous attempts to synthesize products **1** by the procedure of [21, method C] in which equimolar amounts of α-cyanothioacetamide **2** and anthranilic acid, and a 10% excess of sodium ethylate and alkyl halide were used, yields did not exceed 57-70%. We found that the introduction of a small excess of **2** (10%) and alkyl halide (20%) significantly increased the yield of product, which in many cases required no further purification.

Compounds **1** were practically colorless high-melting crystalline substances.

The form of the substituent in position 5 of the anthranilic acid molecule proved to have a definite effect on the yields of compound **1**.

The presence of bulky substituents close to the reaction center (amino group) reduces the yield of reaction product, which is probably linked with steric hindrance. For example, on interacting α-cyanothioacetamide **2** with N-methylanthranilic acid the yield of 2-(1-methyl-4-oxo-1,4-dihydro-2-quinazolinyl)acetonitrile did not exceed 20% (according to ^{1}H NMR spectra), in spite of extended refluxing (30 h), or more rigid reaction conditions such as fusing at 130-150°C.

The presence of halogen at position 5 of anthranilic acid did not reduce the yield of products **1** compared with yields when an alkyl substituent was present at this position. However with 3-chloro- and 3,5-dichloroanthranilic acids the reaction generally did not proceed. This is evidently caused by the combination of two negative factors, steric hindrance and a reduction in the basicity of the amino group under the influence of the neighboring halogen.

The appearance of a strong electron-withdrawing group (CF_3, NO_2) at position 5 of the anthranilic acid molecule proved to have a marked deactivating effect on the course of the reaction.

The reaction of α-cyanothioacetamide **2** with 5-nitroanthranilic acid did not occur either on extended refluxing (30 h) or on fusing the reactants, but with 5-trifluoromethylanthranilic acid the product was formed in low yield. The products of the interaction of compound **2** with 5-trifluoromethylanthranilic and N-methyl-anthranilic acids were not isolated in a pure state.

The characteristics of compounds **1a-k** are given in Table 1.

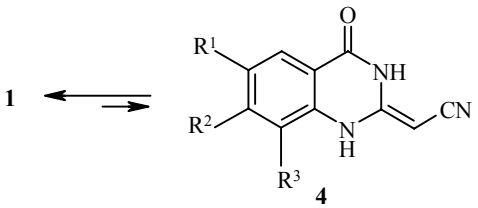
TABLE 1. Characteristics of 2-(4-Oxo-3,4-dihydro-2-quinazolinyl)-acetonitriles **1a-k**

Compound	Empirical formula	Found, % / Calculated, %		mp, °C (BuOH)	R_f*	Yield, %
		N	Hal			
1a	$C_{10}H_7N_3O$			235		94*[2], 70
1b	$C_{11}H_9N_3O$	21.39 / 21.09	—	250-252 (224-226 [13])	0.36	87*[2], 61
1c	$C_{12}H_{11}N_3O$	19.82 / 19.71	—	238-240	0.36	65
1d	$C_{13}H_{13}N_3O$	18.54 / 18.49	—	252	0.35	74*[2]
1e	$C_{12}H_{11}N_3O$	19.38 / 19.71	—	260-261	0.35	57
1f	$C_{12}H_{11}N_3O_3$	17.17 / 17.14	—	287-288	0.36	59
1g	$C_{10}H_6BrN_3O$	16.16 / 15.91	30.13 / 30.26	266-268	0.33	59
1h	$C_{10}H_6ClN_3O$	19.39 / 19.13	16.31 / 16.14	254-256*[3], (243-245 [13])	0.34	60
1i	$C_{10}H_6IN_3O$	13.69 / 13.51		236-238	0.36	60
1j	$C_{10}H_6FN_3O$	20.63 / 20.68	—	245-247	0.33	67
1k	$C_{10}H_6ClN_3O$	18.82 / 19.13	16.21 / 16.14	265-267	0.34	48

* Solvent system: $CHCl_3$–MeOH, 9:1.
*[2] Yield from the procedure described in Experimental.
*[3] Solvent DMF.

The following were observed in the ^{1}H NMR spectra of compounds **1a-k**: a characteristic signal for the methylene group at 4.13-4.19 ppm, signals for the appropriately substituted aromatic part of the molecule, and a signal for the N–H proton of the quinazolone ring at 12.3-12.6 ppm (Table 2).

It is noteworthy that in all the spectra the multiplets of the aromatic protons were duplicated with low intensity signals (10-15% of the main signal) shifted towards high field by 0.1-0.2 ppm relative to the corresponding main signals. Another characteristic was the presence of two broadened different-intensity singlets at 10.7 and 11.3 ppm which disappeared on adding D_2O. We propose the presence of a impurity in the synthesized products **1**. However all our numerous attempts to purify them were unsuccessful. We consider that the data obtained may indicate the presence of prototropy in these substances with the equilibrium displaced to the side of product **1**.



It should be mentioned that on increasing the temperature a further displacement in the equilibrium is observed in the direction of isomer **1**, which was recorded by ^{1}H NMR spectroscopy (see Fig. 1 for compound **1g**).

TABLE 2. ^{1}H NMR Spectra of Compounds **1b-k**

Com-pound	–CH_2–, (2H, s)	^{1}H NMR, δ, ppm, *J* (Hz)*					
		5-H	6-H	7-H	8-H	Alk	NH (1H, br. s)
1b	4.15	7.91 (1H, br. s)	—	7.67 (1H, dd, ^3J = 8, ^4J = 2)	7.56 (1H, d, ^3J = 8)	2.45 (3H, s, 6-Me)	12.38
1c	4.15	7.91 (1H, d, ^4J = 2)	—	7.69 (1H, dd, ^3J = 8.5, ^4J = 2)	7.59 (1H, d, ^3J = 8.5)	2.74 (2H, q, ^3J = 7, 6-Et), 1.23 (3H, t, ^3J = 7, 6-Et)	12.32
1d	4.16	7.93 (1H, d, ^4J = 2)	—	7.75 (1H, dd, ^3J = 8.5, ^4J = 2)	7.61 (1H, d, ^3J = 8.5)	3.06 (1H, septet, *i*-Pr-6), 1.26 (6H, d, ^3J = 7, *i*-Pr-6)	12.37
1e	4.15	7.73 (1H, d, ^4J = 2)	—	7.52 (1H, d, ^4J = 2)	—	2.52 (3H, s, 8-Me), 2.40 (3H, s, 6-Me)	12.33
1f	4.13	7.42 (1H, s)	—	—	7.14 (1H, s)	3.92 (3H, s, 6-OMe), 3.87 (3H, s, 7-OMe)	12.29
1g	4.15	8.16 (1H, d, ^4J = 2)	—	7.95 (1H, dd, ^3J = 8.5, ^4J = 2)	7.62 (1H, d, ^3J = 8.5)	—	12.65
1h	4.16	8.02 (1H, d, ^4J = 2)	—	7.85 (1H, dd, ^3J = 8.5, ^4J = 2)	7.69 (1H, d, ^3J = 8.5)	—	12.64
1i	4.17	8.35 (1H, d, ^4J = 2)	—	8.1 (1H, dd, *J* = 8.5, ^4J = 2)	7.46 (1H, d, ^3J = 8.5)	—	12.59
1j	4.18	7.69-7.79 (3H, m)	—	7.69-7.79 (3H, m)	7.69-7.79 (3H, m)	—	12.60
1k	4.19	8.09 (1H, d, ^3J = 8.5)	7.57 (1H, dd, ^3J = 8.5, ^4J = 2)	—	7.75 (1H, d, ^4J = 2)	—	12.51

* Signals of quinazolone ring protons.

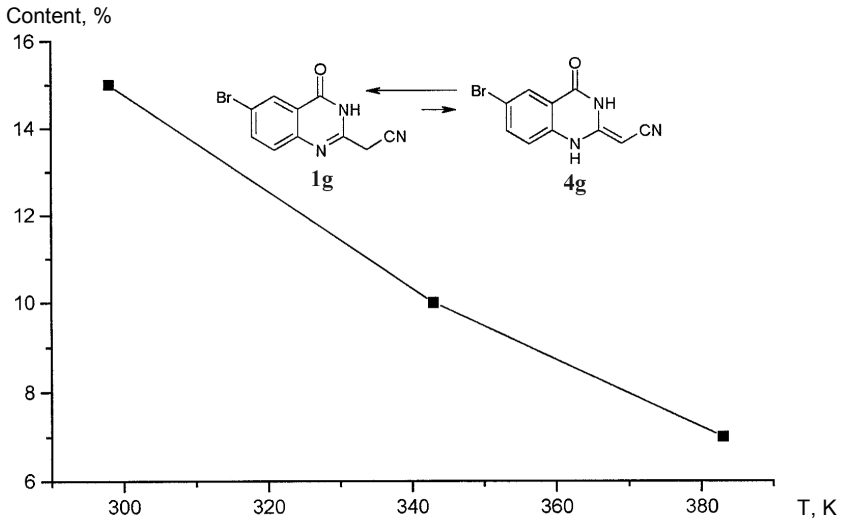


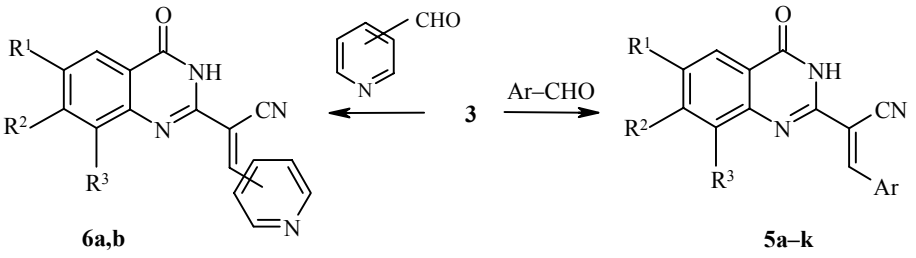
Fig. 1. Dependence of the content of isomer **4g** on temperature.

The introduction of electron-withdrawing substituents (halogen atoms) into the benzene ring of quinazolones **1** increases the isomer **4** content. This effect is explained logically by an increase in the mobility of the methylene group protons.

The signal of the methine group proton of tautomer **4** overlapes with the signals of the protons of the benzene nucleus.

It was also possible to demonstrate the presence of isomer **4** with the aid of TLC by applying a large quantity of substance to the chromatographic plate. The R_f values for tautomers **4** were 0.2 greater than the R_f values of the corresponding tautomers **1**.

The condensation of 2-cyanomethyl-4(3H)-quinazolones with aromatic aldehydes has been carried out previously [1, 16, 21]. We have studied the condensation of compounds **1b,c,f,g,j,k** with different aromatic and some heteroaromatic aldehydes, leading to the formation of the corresponding 3-aryl- (**5a-k**) and 3-pyridyl-2-(4-oxo-3,4-dihydro-2-quinazolinyl)acrylonitriles (**6a,b**).



5 a, g R^1 = Me, **b**, **i** R^1 = Et, **c** R^1 = Br, **d**, **j** R^1 = F, **e**, **h**, **k** R^1 = H, **f** R^1 = OMe;
a-d, **g**, **i**, **j** R^2 = H, **e**, **k** R^2 = Cl, **f** R^2 = OMe, **a-k** R^3 = H; **f** Ar = 4-$Me_2NC_6H_5$, **h** Ar = 4-MeC_6H_4,
k Ar = 4-$MeOC_6H_4$; **6 a** R^1 = Me, **b** R^1 = Br, **a**, **b** R^2 = R^3 = H, **a** Het = 4-C_5H_4N, **b** Het = 3-C_5H_4N

The reaction proceeds readily on refluxing a mixture of the reactants in butanol in the presence of triethylamine. All the compounds obtained are brightly colored (yellow, orange). The physicochemical and spectral characteristics of these compounds are given in Tables 3 and 4.

TABLE 3. Characteristics of 3-Aryl- and 3-Pyridyl-2-(4-oxo-3,4-dihydro-2-quinazolinyl)acrylonitriles **5a-k** and **6a,b**

Compound	Ar (Het)	Empirical formula	Found, % / Calculated, %		mp, °C (DMF)	R_f*	UV spectrum (BuOH), λ_{max}, nm (log ε)	Yield, %
			N	Hal				
5a	4-$NMe_2C_6H_4$	$C_{20}H_{18}N_4O$	16.63 / 16.96	—	328	0.74	425 (4.43), 220 (4.53)	91
5b	4-$NMe_2C_6H_4$	$C_{21}H_{20}N_4O$	16.54 / 16.27	—	313-313.5	0.72	425 (4.42), 220 (4.47)	87
5c	4-$NMe_2C_6H_4$	$C_{19}H_{15}BrN_4O$	13.86 / 14.18	20.40 / 20.22	324-324.5	0.72	460 (4.43), 300 (4.19), 223 (4.56)	85
5d	4-$NMe_2C_6H_4$	$C_{19}H_{15}FN_4O$	16.94 / 16.76	—	329-330	0.65	450 (4.59), 214 (4.52)	89
5e	4-$NMe_2C_6H_4$	$C_{19}H_{15}ClN_4O$	16.21 / 15.97	9.92 / 10.10	334	0.68	460 (4.38), 300 (4.03), 235 (4.52), 208 (4.35)	86
5f	4-$NMe_2C_6H_4$	$C_{21}H_{20}N_4O_3$	14.85 / 14.89	—	>350	0.63	420 (4.25), 328 (3.92), 208 (4.18)	80
5g	4-MeC_6H_4	$C_{19}H_{15}N_3O$	14.21 / 13.94	—	329-330	0.75	315 (4.43), 230 (4.61), 208 (4.60)	83
5h	4-MeC_6H_4	$C_{18}H_{12}ClN_3O$	13.33 / 13.06	11.36 / 11.02	319	0.74	315 (4.34), 236 (4.62), 206 (4.48)	83
5i	4-$OMeC_6H_4$	$C_{20}H_{17}N_3O_2$	12.71 / 12.68	—	282-283	0.66	333 (4.38), 235 (4.51), 215 (4.49)	81
5j	4-$OMeC_6H_4$	$C_{18}H_{12}FN_3O_2$	13.06 / 13.08	—	319-320	0.74	335 (4.40), 215 (4.52)	83
5k	4-$OMeC_6H_4$	$C_{18}H_{12}ClN_3O_2$	12.36 / 12.44	10.68 / 10.50	295-296	0.74	330 (4.33), 240 (4.60), 208 (4.36)	79
6a	(4-pyridyl)	$C_{17}H_{12}N_4O$	19.88 / 19.43	—	290-291	0.38	370 (4.14), 330 (4.13), 275 (4.34), 223 (4.50)	70
6b	(3-pyridyl)	$C_{16}H_9BrN_4O$	16.09 / 15.86	22.88 / 22.63	294	0.37	277 (4.29), 225 (4.56)	80

* Solvent system: $CHCl_3$–MeOH, 9:1.

TABLE 4. ^{1}H NMR Spectra of Compounds **5a-k** and **6a,b**

Com-pound	^{1}H NMR (DMSO-d_6), δ, ppm, *J* (Hz)*							
	5-H	6-H	7-H	8-H	Alk	NH (1H, br. s)	–CH= (1H, s)	Ar protons
1	2	3	4	5	6	7	8	9
5a	7.92 (1H, br. s)	—	7.64 (1H, br. d, ^3J = 8)	7.57 (1H, d, ^3J = 8)	2.45 (3H, s, 6-Me)	12.17	8.24	7.93 (2H, d, ^3J = 8.5, 2-H, 6-H); 6.86 (2H, d, ^3J = 8.5, 3-H, 5-H); 3.10 (6H, s, 4-NMe_2)
5b	7.94 (1H, br. s)	—	7.69 (1H, br. d, ^3J = 8.5)	7.59 (1H, d, ^3J = 8.5)	2.75 (2H, q, ^3J = 7, 6-Et); 1.25 (3H, t, ^3J = 7, 6-Et)	12.29	8.26	7.93 (2H, d, ^3J = 8.5, 2-H, 6-H); 6.86 (2H, d, ^3J = 8.5, 3-H, 5-H); 3.10 (6H, s, 4-NMe_2)
5c	8.17 (1H, br. s)	—	7.92 (1H, br. d, ^3J = 8)	7.60 (1H, d, ^3J = 8)	—	12.42	8.26	7.92 (2H, d, ^3J = 8, 2-H, 6-H); 6.85 (2H, d, ^3J = 8, 3-H, 5-H); 3.08 (6H, s, 4-NMe_2)
5d	7.67-7.8 (3H, m)	—	7.67-7.8 (3H, m)	7.67-7.8 (3H, m)	—	12.45	8.27	7.93 (2H, d, ^3J = 9, 2-H, 6-H); 6.87 (2H, d, ^3J = 9, 3-H, 5-H); 3.09 (6H, s, 4-NMe_2)
5e	8.10 (1H, d, ^3J = 8)	7.51 (1H, dd, ^3J = 8, ^4J = 2)	—	7.69 (1H, d, ^4J = 2)	—	12.45	8.29	7.94 (2H, d, ^3J = 9, 2-H, 6-H); 6.88 (2H, d, ^3J = 9, 3-H, 5-H); 3.09 (6H, s, 4-NMe_2)
5f	7.45 (1H, s)	—	—	7.11 (1H, s)	3.93 (3H, s, 7-OMe); 3.89 (3H, s, 6-OMe)	12.17	8.22	7.89 (2H, d, ^3J = 8.5, 2-H, 6-H); 6.83 (2H, d, ^3J = 8.5, 3-H, 5-H); 3.07 (6H, s, 4-NMe_2)
5g	7.95 (1H, br. s)	—	7.68 (1H, dd, ^3J = 8.5, ^4J = 2)	7.64 (1H, d, ^3J = 8.5)	2.47 (3H, s, 6-Me)	12.50	8.42	7.91 (2H, d, ^3J = 8.1, 2-H, 6-H); 7.43 (2H, d, ^3J = 8.1, 3-H, 5-H); 2.42 (3H, s, 4-Me)

TABLE 4 (continued)

1	2	3	4	5	6	7	8	9
5h	8.11 (1H, d, ^3J = 8.5)		—	7.74 (1H, d, ^4J = 2)	—	12.69	8.44	7.90 (2H, d, ^3J = 8.1, 2-H, 6-H); 7.41 (2H, d, ^3J = 8.1, 3-H, 5-H); 2.4 (3H, s, 4-Me)
5i	7.97 (1H, d, ^4J = 2)	—	7.72 (1H, dd, ^3J = 8, ^4J = 2)	7.64 (1H, d, ^3J = 8)	2.77 (2H, q, ^3J = 7, 6-Et); 1.26 (3H, t, ^3J = 7, 6-Et)	12.47	8.41	8.02 (2H, d, ^3J = 8.7, 2-H, 6-H); 7.19 (2H, d, ^3J = 8.7, 3-H, 5-H); 3.88 (3H, s, 4-OMe)
5j	7.69-7.82 (3H, m)	—	7.69-7.82 (3H, m)	7.69-7.82 (m)	—	12.63	8.39	7.99 (2H, d, ^3J = 8.7, 2-H, 6-H); 7.16 (2H, d, ^3J = 8.7, 3-H, 5-H); 3.87 (3H, s, 4-OMe)
5k	8.13 (1H, d, ^3J = 8)	7.56 (1H, dd, ^3J = 8, ^4J = 2)	—	7.74 (1H, d, ^4J = 2)	—	12.59	8.42	8.02 (2H, d, ^3J = 9, 2-H, 6-H); 7.17 (2H, d, ^3J = 9, 3-H, 5-H); 3.89 (3H, s, 4-OMe)
6a	7.96 (1H, br. s)	—	7.71 (1H, dd, ^3J = 8, ^4J = 2)	7.66 (1H, d, ^3J = 8)	2.47 (3H, s, 6-Me)	12.65	8.47	8.83 (2H, d, ^3J = 5.8, 2-H, 6-H); 7.80 (2H, d, ^3J = 5.8, 3-H, 5-H)
6b	8.23 (1H, br. s)	—	8.01 (1H, br. d, ^3J = 8.5)	7.70 (1H, d, ^3J = 8.5)	—	12.83	8.54	8.99 (1H, br. s, 2-H); 8.76 (1H, br. d, ^3J = 5, 6-H); 8.44 (1H, br. d, ^3J = 8, 4-H); 7.65 (1H, dd, $^3J_{5\text{-H},4\text{-H}}$ = 8, $^3J_{5\text{-H},6\text{-H}}$ = 5, 5-H)

*5-H, 8-H, Alk, and NH for protons of the quinazolone ring.

We have determined the scope of the method of synthesizing 2-(4-oxo-3,4-dihydro-2-quinazolinyl)acetonitriles [21] and have optimized the reaction conditions, which has led to an increase in the yield of the target compounds. The existence of isomerism (prototropy) in compounds **1** is proposed. Condensation products at the active methylene group with (hetero)aromatic aldehydes have been obtained in good yield with compounds **1b,c,h,m,n**.

EXPERIMENTAL

A check on the progress of reactions and the purity of the products synthesized was carried out by TLC on Silufol UV 254 plates in chloroform–methanol, 9:1. The ^{1}H NMR spectra were measured on a Varian Mercury (300 MHz) spectrometer with TMS as internal standard. The UV spectra were taken on a Specord UV-vis spectrometer in BuOH at concentrations ~$3\cdot10^{-5}$ M with a cell thickness of 1 cm (0.5 cm for compound **5h**). Melting points were measured (at "equilibrium" according to Kofler) on a Boetius micro-hot stage with a VEB Analytik PHMK 05 observation device. The anthranilic acids were obtained by the procedure described in [22].

2-(4-Oxo-3,4-dihydro-2-quinazolinyl)acetonitriles (1a-c,e-k) were obtained according to [21, method C].

General Procedure for Synthesizing 2-(4-Oxo-3,4-dihydro-2-quinazolinyl)acetonitriles 1a,b,d. α-Cyanothioacetamide **2** (11 g, 0.11 mol) was added to a solution of sodium (2.53 g, 0.11 mol) in methanol (or ethanol) (50 ml), the mixture was stirred, while being heated until complete solution of compound **2**. Ethyl bromide (9.6 ml, 0.12 mol) was then added, the mixture was stirred, and left for 3-4 h. The appropriate anthranilic acid (0.1 mol) was added to the solution of compound **3** obtained, the mixture was refluxed (3-4 h), checking the completeness of conversion chromatographically. Product **1** precipitated from the hot solution. The mixture was cooled, the solid filtered off, washed with alcohol, and with water, dried, and recrystallized from a suitable solvent (Tables 1 and 2).

General Procedure for Synthesizing 3-Aryl- (5a-k) and 3-Pyridyl-2-(4-oxo-3,4-dihydro-2-quinazolinyl)acrylonitriles (6a,b). Nitrile **1** (3 mmol) was dissolved with heating in BuOH (10 ml). The appropriate aldehyde (3 mmol) and triethylamine (3 mmol) were added. The reaction mixture was refluxed for 3-4 h, checking the course of the reaction chromatographically. The reaction mixture was cooled, the precipitate of (**5, 6**) was filtered off, washed with alcohol, dried, and compounds **5** and **6** were obtained (Tables 3 and 4).

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