LITERATURE CITED

1. E. C. Taylor and E. E. Garcia, J. Org. Chem., 29, 2121 (1964).
2. W. E. Hymans, J. Heterocycl. Chem., 13, 1141 (1976).
3. M. P. Nemeryuk, A. L. Sedov, I. Krzhepelka, and T. S. Safonova, Khim. Geterotsikl. Soedin., No. 10, 1426 (1982).

2-SELENOXOQUINAZOLONES-4, A NEW KIND OF QUINAZOLONE

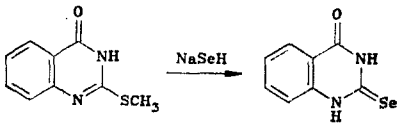
L. M. Yun and Kh. M. Shakhidoyatov

UDC 547.856.1

No information has yet been published on quinazoline derivatives that contain such heteroatoms as selenium, tellurium, etc., in position 2. Moreover, quinazolines with these substituents are of great theoretical interest from the viewpoint of comparing their reactivity with that of 2-oxo-, amino, or thioxoquinazolones-4. Furthermore, these compounds can be starting materials for the generation of a new heterocyclic system, viz., selenazoquinazoline.

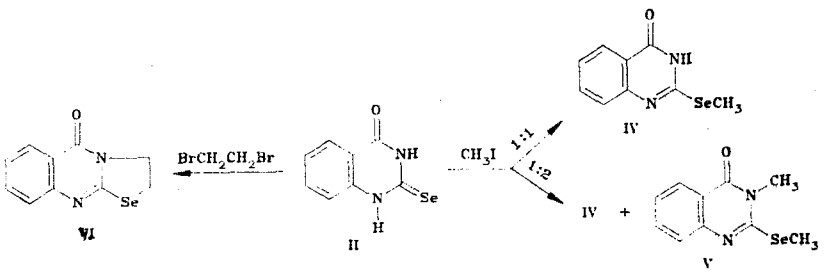
On the basis of the nucleophilic substitution [1] of 2-methylthioquinazolone-4 (I) by various amines we assumed that by means of this reaction a selenium atom could be introduced at position 2 of the quinazoline ring, since when it is directly introduced into that position (as, e.g., in the case of sulfur [2]) the expected results were not obtained.

We have shown that for compound I nucleophilic substitution by sodium selenide at the moment it is formed [3] gives selenoxoquinazolone-4 (II), whereas 2-thioxoquinazolone-4 does not undergo this reaction.



I II

Alkylation of II with methyl iodide in alcoholic alkali gives, depending on proportions, either 2-methylselenoquinazolone-4 (IV), or a mixture thereof with 3-methyl-2-selenoquinazolone-4 (V); alkylation with dibromoethane gives 2,3-dihydroselenazo[2,1-b]quinazolone-4 (VI).



VI II IV IV + V

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2-Selenoxoquinazolone-4 (II). Yield 59%, R_f 0.65 (silufol, 4:1 benzene—acetone), mp 245-247° (from alcohol), M^+ 224/226. UV spectrum: 224, 318 (C_2H_5OH), 235, 292 nm (C_2H_5OH + KOH).

2-Methylselenoquinazolone-4. (IV). Yield 62%, R_f 0.82, mp 208-210° (from alcohol), M^+ 238/240. PMR spectrum ($CDCl_3$): 2.55 ($SeCH_3$, s), 7.25-7.80 (6-, 7-, 8-H, m), 8.28 ppm (5-H,d). UV spectrum: 225, 237, 279 nm (C_2H_5OH).

3-Methyl-2-methylselenoquinazolone-4 (V). Yield 16%. R_f 0.90, mp 78° (from hexane), M^+ 254/256. PMR spectrum ($CDCl_3$): 2.55 ($SeCH_3$, s), 3.55 ($3-CH_3$, s), 7.37-7.70 (6-, 7-, 8-H, m), 8.15-8.40 ppm (5-H, d). UV spectrum: 224, 237, 238 nm (C_2H_5OH).

2,3-Dihydroselenazo[2,1-b]quinazolone-4 (VI). Yield 52%, R_f 0.52, mp 141-142° (from 3:2 alcohol—water), M^+ 250/252. UV spectrum: 226, 286, 242 nm (C_2H_5OH).

LITERATURE CITED

1. M. Seth and N. M. Khanna, Indian J. Chem., 14B, 536 (1976).
2. L. M. Yun, S. Yangibaev, Kh. M. Shakhidoyatov, and Ch. Sh. Kadyrov, Khi. Geterotsikl. Soedin., No. 2, 268 (1983).
3. M. Lath-Compere, A. Luxen, L. Christiaens, M. Guillaume, and M. Renson, J. Heterocycl. Chem., 18, 343 (1981).

ALKYLATION OF 6-SUBSTITUTED PURINES IN CONDITIONS OF INTERPHASE CATALYSIS

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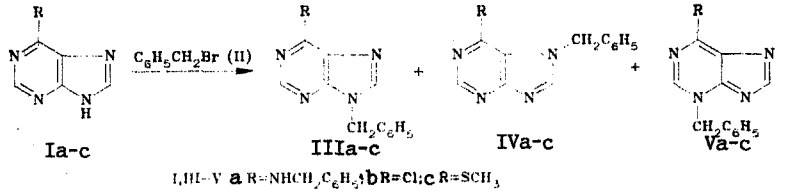
Alkylation of the 6-substituted purines (Ia-c) in the presence of bases is usually performed in dry bipolar aprotic solvents at 25-100°C in the course of 3-85 h; this leads to the mixture of the N-9-, N-7-, and N-3-alkylation products [1-3]. It was recently shown for adenine that the alkylation proceeds by 75-92% at 20-80°C in 8-12 h in the biphasic system of the organic solvent and a 10-20% aqueous solution of NaOH (or without the solvent with solid alkali) in the presence of an interphase catalyst [4-6].

We established that the application of a biphasic system of the liquid—liquid or liquid—solid type using 50% aqueous alkali or solid alkali is significantly more effective for the alkylation of the purines Ia-c. Such conditions increase the yield of the alkylpurines substantially with low duration of the reaction; the control of the course of the reaction is also additionally greatly simplified by using the liquid—liquid systems. The alkylation can be considered as completed right after the disappearance of the suspension of the sodium salt of the initial purine which is formed by its deprotonation at the interphase boundary, and is solubilized in the organic phase with the aid of the interphase catalyst, and is therefore gradually drawn into the alkylation reaction.



I, III–V a R=NHCH$_2$C$_6$H$_5$; b R=Cl; c R=SCH$_3$

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