2,4-Diazidoquinazoline as Useful Starting Material in Heterocyclic Chemistry

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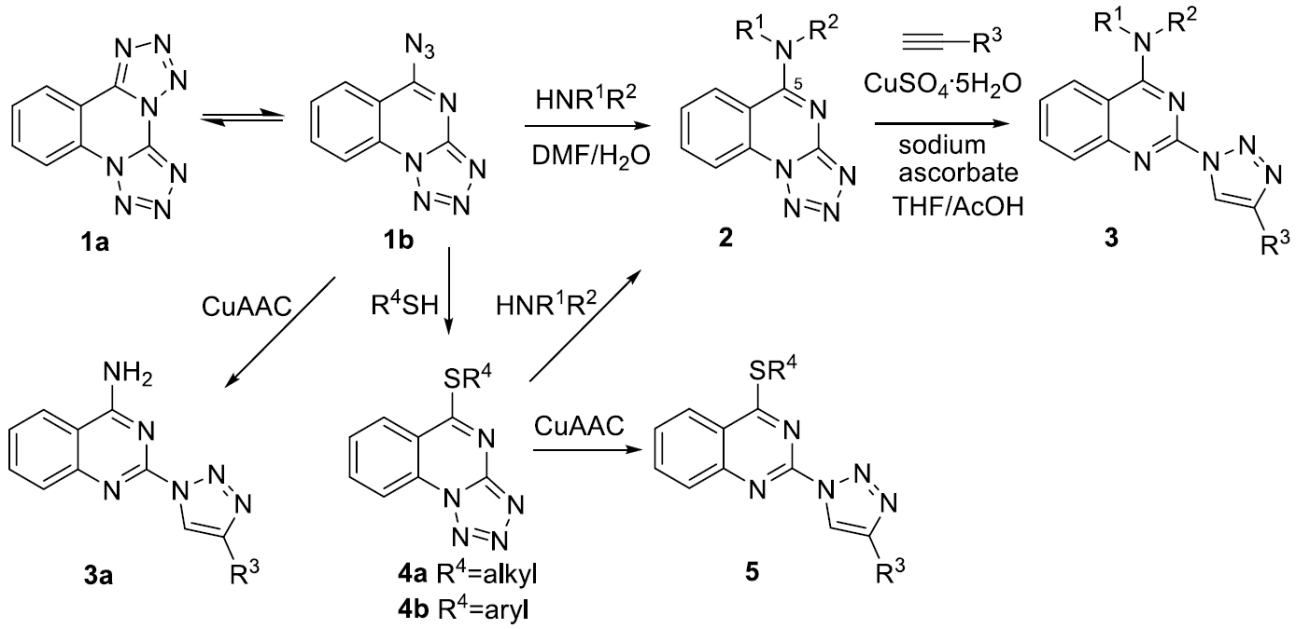
Quinazoline derivatives have attracted significant attention due to their wide spectrum of biological activity, such as anti-malarial, anti-microbial, anti-diabetic, anti-cancer and other activities. Extensive studies on design, synthesis and evaluation of biological activity of quinazolines were provided in the last years.

It was discovered that 2,4-diazidoquinazoline (formal name) in solution exists in a tautomeric equilibrium as **1a** and **1b**. The tetrazole – azide tautomerism of azidoquinazolines was studied since 1960s, however, its application for 2,4-derivatization of quinazolines is underexplored.

Previously [1,2] we reported that nucleophilic aromatic substitution of 5-azidotetrazolo[1,5-a]quinazoline (**1b**) with *N*-nucleophiles proceeds with high C(5) selectivity. For the first time the molecular structure of 5-(piperidin-1-yl)tetrazolo[1,5-a]quinazoline was proved by X-ray diffraction analysis. We have also shown that obtained 5-amino derivatives **2** undergo CuAAC reaction with terminal alkynes to give compounds of type **3**.



Similarly proceeds the reactions of **1b** with alkylthiols to give **4a** with good yields. The structure of 5-(decylthio)tetrazolo[1,5-a]quinazoline was proved by X-ray diffraction analysis. CuAAC reaction of **4a** with terminal alkynes gave 1,2,3-triazolyl derivatives **5**.

We have also found that starting material **1b** is prone to reduction, most probably via single electron transfer pathway. Thus, substantial amounts of products containing free amino group were obtained when **1b** was treated with Cu(I) or arenethiols.

References: 1. Kalniņa, A.; Bizdēna, Ē.; Kiselovs, G.; Mishnev, A.; Turks, M. *Chem. Heterocycl. Comp*. **2014**, *49*, 1667-1673. 2. Goliškina, S.; Cīrule, D.; Bizdēna, Ē.; Turks, M. *Materials Sciences and Applied Chemistry*. **2017**, Vol.34, 59-62.