

SYNTHESIS OF NOVEL MONO-SUBSTITUTED “QUINAZOLINE-UREA” HYBRID MOLECULES

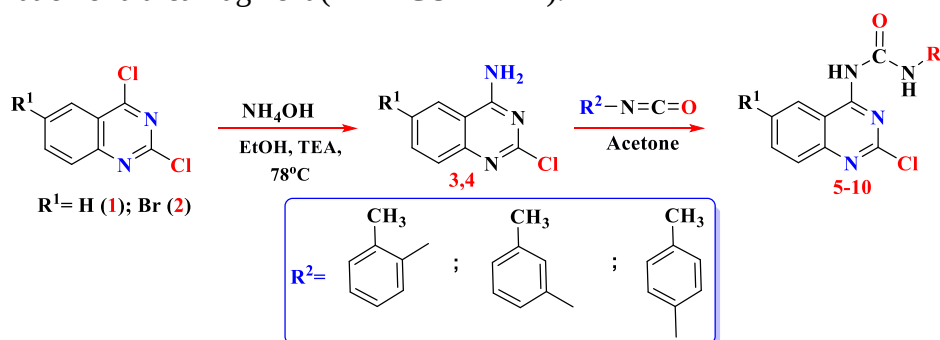
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Quinazoline-urea derivatives constitute an important class of compounds with promising antitumor activity. Quinazoline derivatives containing a thiadiazole-aryl urea moiety have demonstrated activity against breast and lung cancer cell lines. Quinazolinone derivatives linked to phenylurea have been reported to inhibit the proliferation of tumor cells and reduce inflammatory processes. These findings support the evaluation of quinazoline-urea derivatives as promising scaffolds for the development of novel biologically active compounds [1,2].

The main objectives of this study were to identify simple and convenient methods for the synthesis of 6-bromo-2-chloro-4-aminoquinazolines and to carry out their condensation reactions with various isocyanates: *o*-, *m*-, and *p*-tolyl isocyanates. 6-Bromo-2-chloro-4-aminoquinazolines contain an amino group at the position 4, which exhibits nucleophilic character. Isocyanates, in contrast, are strong electrophiles, and amines readily attack their carbonyl carbon atoms. As a result, a nucleophilic condensation reaction occurs, leading to the formation of a urea fragment (–NH–CO–NH–R).



The reactions were performed using 6-bromo-2,4-dichloroquinazoline, ammonia, and triethylamine (TEA) in a molar ratio of 1:1.5:1.5. Subsequently, 6-bromo-2-chloro-4-aminoquinazoline and the corresponding isocyanate were reacted in a 1:1 molar ratio for 6 h. The desired compounds were synthesized in good yields: **3** (80%), **4** (75%), **5** (68%), **6** (72%), **7** (79%), **8** (65%), **9** (73%) and **10** (64%). The structures of the synthesized compounds were confirmed by IR spectroscopy, ^1H NMR spectroscopy, and mass spectrometry.

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References

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