N-Alkylation of 2 Chloro-quinazolinone for the preparation of Di-substituted Quinazoline derivatives.

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Abstract

Chagas is an inflammatory infectious disease caused by a group of parasites of the protozoan Trypanosoma cruzi, and is a part of WHO's top 13 neglected diseases. It is commonly found in Latin America, especially in poor and rural areas and affects about 8 million people. Chagas disease can effectively be treated with two treatments: Benznidazole and Nifurtimox in the acute phase; however, there are limitations to those drugs for long-term use which result in drug resistance or increasing toxicity. The overall project consists of finding a new treatment for Chagas disease by establishing an optimized synthesis pathway toward bioactive Quinazolinone. There are three main components in the synthesis of this drug, involving alkylation, amination, and amidation which were separated into three different groups in order to test varying factors to gather information on effective pathways to create this target molecule. Our team's subproject area was the first step of alkylation for preparation of animated quinazolinone and were tasked with finding different leaving groups, using different bases, and solvents to see if we can get a higher yield in the product. In this research, if the optimizing alkylation reaction synthesizes quinazolinone more efficiently, then we will be able to contribute to the ongoing research for a promising and more effective treatment for Chagas disease and also may allow for the improvement of the previous treatments in order to reduce toxic effects.