Synthesis of Quinazolinone Derivatives for use in Biological Testing

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Chagas disease is prevelent in South America and is responsible for approximately 10,000 deaths each year. Chagas disease is caused by a parasite known as Trypanosoma cruzi and is spread through vector insects such as the kissing bug. The current treatments for Chagas are the drugs Nifurtimox and Benznidazole which are ineffective in the long term and have toxic side effects. Quinazolinones have been found to have positive effects but further research into quinazolinone derivatives bioactivity is required. Our objective is establish a robust synthetic route and optimize the route to synthesize various quinazolinone derivatives for eventual biological testing. Quinazolinone derivatives can be successfully synthesized through the establishment of a robust synthetic route so that biological testing of the derivatives can occur. A synthetic route was established where a quinazolinone core scaffold was expanded by alkylating the scaffold which was then proceeded by an amination reaction. The alkylated, aminated scaffold was then subjected to hydrolysis followed by an amidation reaction. The desired quinazolinone derivatives were successfully synthesized in reasonably high yields and characterization data was obtained confirming that the derivatives were synthesized.