ABSTRACT

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Title: THE SUZUKI-MIYAURA REACTION AND BIOLOGICAL ACTIVITY OF OXOAZABORANES

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The Suzuki-Miyaura reaction has produced many important organic compounds and it is critical to expand its scope given the importance of this reaction in organic and medicinal chemistry. The first goal of this project was to successfully synthesize several dioxazaborolidine compounds. The Suzuki-Miyaura reaction was attempted with these diborane compounds, along with an arylhalide, and a nickel catalyst, in order to synthesize several aryl oxoazaborane (oxazaborolidine) compounds. There was a focus on improving reaction yield as well as studying changing reaction conditions and how they impact the yields. The second goal was to then test the reaction involving oxoazaborane compounds in an attempt to synthesize bi-aryl derivatives. The final goal was to test the synthesized compounds for their biological activity. The antibiotic potential of these compounds could directly contribute to curing bacterial diseases. The emergence of antimicrobial resistance raises the importance of discovering new antibiotics for overall public health.