

Title: **Synthesis and characterization of carbene precursors and their Copper(I) complexes in Click Chemistry**

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It is well known that the Chemical industry has an enormous environmental and economic impact that lead us towards a green chemistry movement to seek out for more atom economical and solvent free routes in order to improve synthetic procedures and reduce waste. This concept of reducing waste is achieved by using catalytic reactions, where Click chemistry plays an important role.

N-heterocyclic carbenes, NHCs, are a critical and important discovery in organocatalysis and in organometallic chemistry as ligands, which stand out because of their unique properties, and lately, these properties have been seen as key in developing stable NHC-metal complexes for medicinal purposes in oncology and antimicrobial activities.

The present work focuses on synthesizing and characterizing two mesoionic carbenes, MIC, precursors and their copper (I) complexes. We want to study this particular type of carbene because they are not so common. Their structure and the manner in which they are bound to the metal are also of fundamental importance and interest. They have different properties and consequently, could lead to different transition metal catalytic activity. We are encouraged to try this type of ligand because it is something that few researchers have done and is a little explored field in the carbene world. The obtained results suggest that these ligands and the metal complexes are simple to synthesize, and they can be easily characterized by NMR spectroscopy.

Keywords: N-heterocyclic carbenes, mesoionic carbenes, click chemistry.