Selective activation of C–H bonds is a powerful strategy that allows a new entry to valuable functionalized cyclic compounds. The generation of the catalytic species that undergoes the intramolecular C–H bond activation is generally made by carbene insertion from diazocompounds. Thus, activation of various types of C–H bonds using copper(I), rhodium(II) and platinum(II) catalysts are known but, however, few examples have been described using ruthenium(II).

The main goal of this project is aimed at the search of new reactions catalyzed by d8-transition metal complexes (Ru, Os). C–H bond functionalization of alkynyl acetals by Ru-carbenes (readily prepared from alkynes and diazocompounds) is our initial objective.

Five and six-membered carbocyclic acetals could be obtained in moderate-to-good yields by heating in dioxane the alkynyl acetal and diazomethane in the presence of 10% Cp*RuCl(COD).

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