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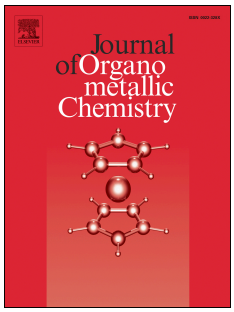

Applications of cyclometalation reaction five-membered ring products

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Contents

ABSTRACT

In 1966, we first found a fact that a dicarboxylic oxygen atom coordinates to tin atom by IR spectra in cyclometalation reactions. The five-membered ring products obtained from the cyclometalation reactions are found to be more chemically stable compared with four- and six-membered ring products. Therefore, in the cyclometalation reaction, the five-membered ring products of the cyclometalation reactions are easily produced, and the great many number of papers involving the cyclometalation reaction five-membered ring products have been published since 1970s. The five-membered ring products of cyclometalation reactions have various functions, because they contain five kinds of hetero atoms (N, P, As, O and S) and most of the metal atoms belonging to both main-group and transition metal group (69 kinds of metals). This review reports on their functions utilized as catalysts, anticancer agents, OLEDs, carbon dioxide utilizations, dye-sensitized solar cells, sensors, hydrogen productions and other pharmaceuticals.