ABSTRACT BOOK

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P-0899

SYNTHESIS OF AROMATICS VIA THE C-C BOND ACTIVATION

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Whereas different methods for creation of new C–C bonds are basic elements in organic synthesis, procedures which use cleavage of such bonds are not very common. Synthetic approach based on the C–C bond cleavage can be conveniently applied on strained carbocycles such as cyclopropanes and cyclobutanes, because it is driven by release of the ring strain..

Biphenylene is a typical compound bearing the strained cyclobutane ring. Therefore it easily undergoes oxidative addition with many transition metal complexes (Ir, Rh, Ni, Co, Fe, Pd, Pt) forming metallacyclopentanes [1]. We focused on the catalytic cycloaddition of biphenylene with alkynes and nitriles in the presence of iridium and rhodium complexes. Through this method a large number of substituted phenanthrenes (including ferrocenylphenanthrenes) and phenanthridines (new methodology) were synthesized [2]. The reaction of biphenylene proceeded even with sterically hindered diferrocenylacetylene giving rise to the corresponding 9,10-diferrocenylphenanthrene in a good isolated yield (42%). Our alkyne insertion procedure was also applied on the more complexed system such angular [3]phenylene exclusive and unexpected selectivity of the course of the reaction was observed (addition from the sterically disfavoured side).

References:

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P-0900

SYNTHESIS OF PALLADIUM(II) COMPLEX WITH 2-(PHENYLSELENOMETHYL)TETRAHYDROPYRAN

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The use of organoselenium compounds as ligands in transition metal coordination chemistry has deserved special attention, in part as a result of the recognition that they may confer significantly different properties on the resultant complexes [1]. In addition, many organoselenium compounds play important roles in biochemical processes, ranging from antioxidant, to anticancer and antiviral activities [2].

In order to study biological activity, Pd(II) complex with 2-(phenylselenomethyl) tetrahydropyran as ligand was synthesized. It is noteworthy to mention that this kind of ligand compounds can be easily obtained in high yields via phenylselenoetherification of corresponding unsaturated alcohols in the presence of additives, such as pyridine [3]. For synthetic procedure, $PdCl_2$ and ligand were used in ratio 1:1. Single crystals were obtained after slow evaporation of complex compound from ethanol/methanol solvent system. The crystal and molecular structure of the complex $[Pd(L)_2)]Cl_2$ has been determined by X-ray diffraction. It turned out that two ligands are coordinated to the Pd via Se atom in *trans*-fashion and the other two *trans* position are occupied by Cl atoms.

References:

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