

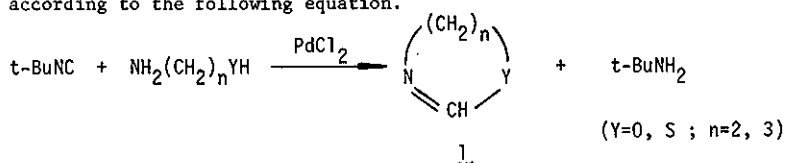
HETEROCYCLE SYNTHESIS BY DIAMINOCARBENE Pd(II) COMPLEX INTERMEDIATE

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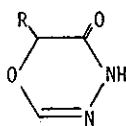
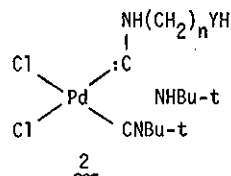
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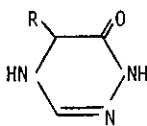
Synthesis of heterocycles containing -N=CH-Y- unit by diaminocarbene Pd(II) complex intermediates is reported. Pd(II)Cl₂ catalyzed reaction of tert-butyl isocyanide with aminoalcohol and with aminothiols afforded the heterocycles (1) such as oxazoline, dihydro-oxazine and thiazoline in moderate yields according to the following equation.



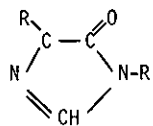
Carbene-coordinated Pd(II)Cl₂ complexes (2), which are key intermediates in the heterocycle synthesis were isolated from the reactions of Pd(II)-Cl₂(tert-BuNC)₂ with aminoalcohol. Similarly, reactions of alkyl isocyanide with α-hydroxycarbohydrazone, with α-aminocarbohydrazone and with α-aminocarboester produced dihydro-oxadiazinone (3), tetrahydro-triazinone (4) and imidazolone (5), respectively.



3



4



5

Furthermore, diaminocarbene Pd(II)Cl₂ complexes (6) were treated with Ag₂O to produce imino-oxazolines (7) in good yields. This cyclization reaction involves β-hydroxycarbo-diimide intermediate which is formed by oxidation of diaminocarbene ligand with Ag₂O.

