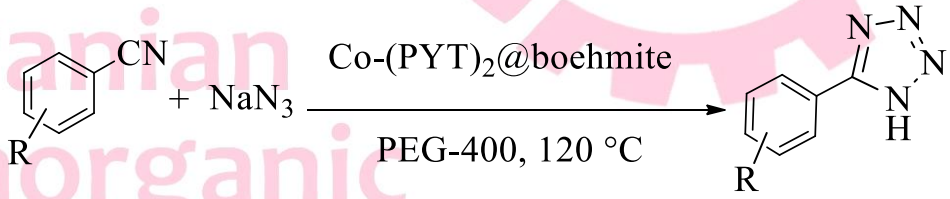
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Co-(PYT)$_2$@boehmite as an efficient and reusable nanocatalyst in the synthesis of tetrazole derivatives

Parisa Moradi[*,a], Arida Jabbari[*,b], Bahman Tahmasbi[a*,]
[a]*Department of Chemistry, Faculty of Science, Ilam University, P.O. Box 69315516, Ilam, Iran.*
[b] *Department of Chemistry, Qeshm Branch, Islamic Azad University, Qeshm, Iran.*
[*] *E-mail: p.moradi@ilam.ac.ir, arida_jabbari@yahoo.com, bah.tahmasbi@gmail.com*

Boehmite is γ-AlOOH and it is the most stable phase of alumina after gibbsite [1], which contains high aggregation of hydroxyl groups on its surface [2]. Therefore boehmite nanoparticles can be used as an excellent support for fabrication of heterogeneous catalysts [3]. Consequently at first part of this work, boehmite nanoparticles were modified using 3-choloropropyltrimtoxysilane and then 1,3-bis(pyridin-3-ylmethyl)thiourea ((PYT)$_2$) was anchored on its surface. Then, cobalt complex was immobilized on its surface (Co-(PYT)$_2$@boehmite). The final obtained nanoparticles were characterized by FT-IR, TGA, SEM, WDX, EDS, and XRD techniques. At second part of this work, Co-(PYT)$_2$@boehmite was used as an efficient, stable, and selective nanocatalyst for the synthesis of tetrazole derivatives. Because tetrazoles are an important group of medicinal and organic compounds which possess many uses in several fields such as coordination chemistry, synthetic organic chemistry, drugs, medicinal chemistry [4, 5]. Co-(PYT)2@BNPs can recovered and reused again for several consecutively runs without any re-activation.

Keywords: Boehmite nanoparticles, tetrazoles, cobalt, homoselective nanocatalyst



Scheme 1. Synthesis of tetrazoles in the attendance of Co-(PYT)$_2$@boehmite

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