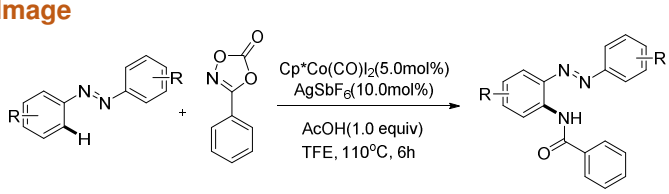
Cp*Co (III)-catalyzed ortho-amidation of azobenzenes with dioxazolones

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Abstract

Cp*Co(III)-catalyzed C–H amidation of azobenzene with dioxazolones has been developed. The amidation reaction does not require external oxidants and gives carbon dioxide as the only byproduct. Both symmetrical and unsymmetrical azobenzenes were found to undergo amidation smoothly with broad functional group tolerance. Over the past few decades, azobenzene derivatives have attracted a great deal of attention due to their extensive application in various fields such as photochemical switches, molecular machines, protein probes, organic dyes, nonlinear optical devices, chemosensors, and polymers. As a consequence much effort has been made for the efficient synthesis and functionalization of azobenzene. Recently, transition metal catalyzed ortho-functionalization of azobenzenes using an azo group as a directing group has received considerable attention for the synthesis of unsymmetrical azobenzenes. In this context, Fahey et al. reported the palladium catalyzed first ortho-halogenations of azobenzenes. Following this, numerous ortho-functionalizations of azobenzenes including alkoxylation, acylation, halogenation, nitration, phosphorylation, addition, alkenylation/cyclization, alkylation/cyclization and amidation/cyclization have been widely investigated. Despite this progress, the orthoamidation of azobenzenes has not been well explored. Recently the group of Lee, Xu and Jia independently demonstrated the C–H amidation of azobenzenes with sulphonyl azides employing the Rh(III)-catalytic system Additionally, Lee and Kim groups independently reported the Rh-catalyzed C–H amidation of azobenzenes using dioxazolones as coupling partners. However all the above ortho-functionalization of azobenzenes had been carried out using precious transition metals such as Pd or Rh, whereas reports on the first row transition metal catalyzed C–H functionalization of azobenzenes are very rare. In recent years, a majority of research has been focused on the use of Cp*Co(III)-catalyzed C–H activation because of its high natural abundance and inexpensive nature. In the present work, we report the Cp*Co(III)-catalyzed C–H amidation of azobenzene with dioxazolones.

Image



Recent Publications (minimum 5)

1) Microwave (MW) irradiated Ugi four-component reaction (Ugi-4CR): Expedited synthesis of steroid–amino acid conjugates – A novel class of hybrid compounds. Preetismita Borah, Juri Moni Borah,Pritish Chowdhury, Steroids, 2015, 98, 49-57.

2) Steroidal hybrid molecules: New molecular entities with potential Therapeutical spectrum,Preetismita Borah*, Pritish Chowdhury*, Current Drug Therapy, 2017, 12, 3-22.

3) Cp*Co(III)- catalyzed C-H Amidation of Azobenzenes with Dioxazolones." Gongotri Borah, Preetismita Borah, Pitambar Patil*, Org. Biomol. Chemistry, 2017,15, 3854-3859.

4) Kitchen to Clinic: Garlic as a Cancer Fighting Spice" Preetismita Borah and Bimal K Banik*, Immunol Curr Res 2018, 2:1.

5) Diverse Therapeutic Applications of Onion" Preetismita Borah and Bimal Krishna Banik*, Archives of Pharmacology and Therapeutics, 2018, 1, 1.



Biography (150 word limit)

Preetismita Borah has her expertise in steroid transformation and in microwave chemistry and also in C-H activation. Her work mainly based on microwave irradiated Ugi-four component reaction. Moreover no reports have been available on the application of MW assisted Ugi-4CR in steroid field towards the synthesis of steroid–amino acid conjugates.

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