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An efficient synthesis of 3-indolyl-3-hydroxy oxindoles and 3,3-di(indolyl)indolin-2-ones catalyzed by sulfonated β -CD as a supramolecular catalyst in water

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Abstract

Sulfonated- β -cyclodextrin (β -CD-SO₃H) promoted efficient and fast electrophilic substitution reaction of indoles with various isatins reflux in water is reported affording various 3-indolyl-3-hydroxy oxindoles and 3,3-di(indolyl)indolin-2-ones in good to excellent yields in short reaction time.

Keywords: Sulfonated- β -cyclodextrin, 3,3-di(indolyl)indolin-2-ones, recyclable catalyst.

Indoles derivatives are important compounds that are widespread in nature as well as exhibit significant biological activities.¹ 3-Substituted 3-hydroxyoxindoles are encountered in a large variety of natural products with a wide spectrum of biological activities.² 3,3-di(indolyl)indolin-2-ones derivatives were assessed as anticancer,³ anti-HIV,⁴ antiviral,⁵ anti-tumor,⁶ antifungal,⁷⁻⁸ anti-angiogenic,⁹ anticonvulsants,¹⁰ anti-Parkinson's disease therapeutic,¹¹ and effective SARS corona virus 3CL protease inhibitor.¹² Furthermore, a large number of bis(indolyl) methane's have been isolated from natural sources,¹³ and some of these natural products for example, vibrindole have shown promising biological activity.¹⁴

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