

Synthesis and anti-leishmanial activity evaluation of isatin adducts obtained via Knoevenagel Condensation using chitosan-EDTA as a bifunctional heterogenized catalyst

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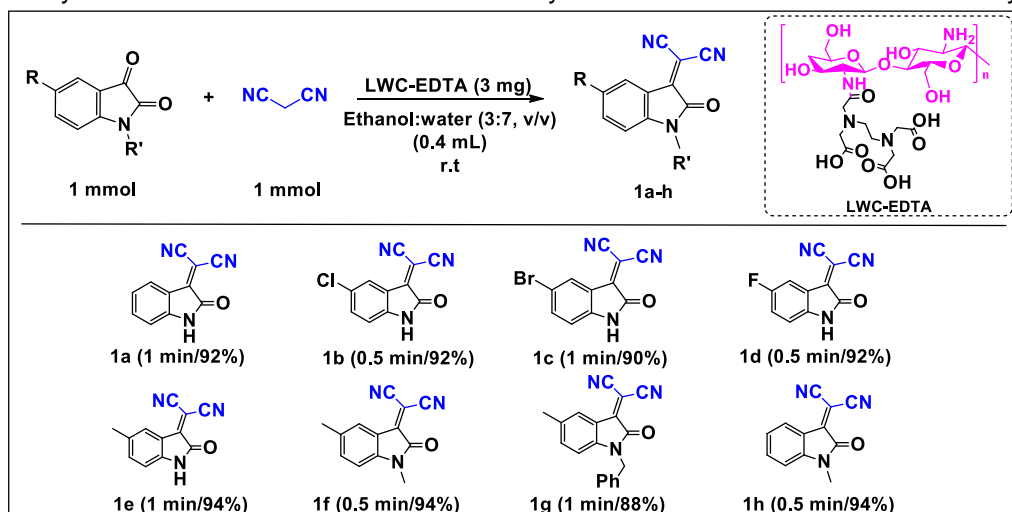
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ABSTRACT

Low molecular weight chitosan functionalized with EDTA (LWC-EDTA) was applied as a bifunctional heterogenized catalyst [1] between several isatin derivatives and malononitrile, providing the obtaining of isatin adducts (**1a-h**) via Knoevenagel condensation in short times (0.5-120 min) and excellent isolated yields (88-94%). The catalyst can be recovered and reused for six cycles without considerable loss of catalytic activity.



Scheme 1. Application of isatin derivatives to obtain various isatin adducts using LWC-EDTA as a bifunctional heterogenized catalyst.

In evaluations against leishmaniasis, isatin adducts **1b** and **1g** exhibited IC₅₀ of 12.09 and 10.90 μM, respectively, proving to be effective against the promastigote phase of the microorganism. In the cytotoxicity test, isatin adducts **1b** and **1g** showed hemolytic activity similar to the negative control, that is, none of the compounds were toxic to human red blood cells. Consequently, it was not possible to calculate the selectivity index (SI).

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