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## An efficient and convenient synthesis of 1,2,3-trisubstituted pyrroles via iodocyclization from ethyl acetoacetate

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### Abstract

A novel and efficient methodology for the synthesis of 1,2,3-trisubstituted pyrroles by one-pot two-step reaction has been developed. The iodocyclization of series of  $\beta$ -enamino esters followed by dehydroiodination, led to the formation of corresponding pyrroles. This approach provides an easy access to a wide range of 1,2,3-trisubstituted pyrroles.

*Keywords:* Pyrroles; One-pot synthesis; Iodocyclization; Tandem reaction

Substituted pyrroles represent an important class of organic compounds which have found in many bioactive molecules and natural products.<sup>1-2</sup> They have also been widely applied in medicinal and material science.<sup>3</sup> In view of their characteristic properties, a variety of methods for synthesis of substituted pyrroles have been developed. Paula and co-workers reported the efficient synthesis of 2,3,5-substituted pyrrole derivatives by treatment of 2,3-dihydrofuran derivatives with trifluoroacetic acid.<sup>4</sup> Recently, Lingaiah and co-workers developed a novel method to construct tetrasubstituted pyrrole ring utilize polyethylene glycol as reaction medium.<sup>5</sup> Abu and co-workers employed a four-component reaction catalyzed by nickel (II) chloride hexahydrate to construct the tetra-substituted pyrroles.<sup>6</sup> However, efficient and convenient methodologies for the synthesis of 1,2,3-trisubstituted pyrroles are not numerous in literature.<sup>7-8</sup> In another arena of iodine chemistry, the nontoxic, inexpensive and readily available iodine has emerged as a very attractive reagent for

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