

Flow Assisted Synthesis of 2-Substituted-Indoles Employing Ceria Supported Mixed Metal Oxides

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Recently we investigated the utility of applying cerium oxide (Ceria) as a support to perovskite type catalysts in flow for the Sonogashira and Heck reactions.¹ Our studies showed that Ceria afforded an improvement in the catalytic activity of the perovskite type catalysts. Here we disclose our subsequent studies investigating the applicability of mixed metal oxide-Ceria catalytic systems to the synthesis of 2-substituted-indoles from *o*-iodoanilines and monosubstituted alkynes. Indoles represent a key class of heterocyclic compounds in both natural products² and medicinal compounds³ and thus there is great demand for a clean, reliable route for their synthesis. In the course of this study we found the Sonogashira coupling could be easily implemented as expected. Significantly, though, the 5-endo-dig cyclisation of the *o*-alkynylaniline was found to be facilitated by Pd-containing perovskites and that Ceria again had a positive influence on the activity of the catalyst, thus enabling good conversions in relatively short reaction times. Transferring the process to flow allowed a facile preparation of 2-substituted-indoles with minimal downstream processing required.



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