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Going towards green Chemistry: Iron catalysed Suzuki cross coupling

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Palladium-catalyzed cross-coupling reactions are the most powerful tool in C-C bond formation reactions. Among those, the Suzuki-reaction is of particular interest, as it can be carried out under mild reaction conditions using non-toxic, inexpensive and readily available boronic acids.
The aim was to establish a reaction catalyzed by abundant iron instead of detrimental and expensive palladium. Using iron, the coupling of biaryl compounds poses a particular challenge, and for the Suzuki-type reactions there is only one example in literature.
Accordingly, our work in which an aryl chloride is made accessible by an ortho-directing imine for this type of cross coupling reaction is satisfactory. The imine function is excellently suited for post modifications, so that industrially important substances such as boscalid, DOPO and telmisartan were synthesized from the products. Besides, a deeper understanding of this reaction was gained by performing detailed kinetic analysis and stoichiometric experiments.

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