C-H Activation and Oxidative Cyanation of Amines Using Protuberant Lychee-like Goethite

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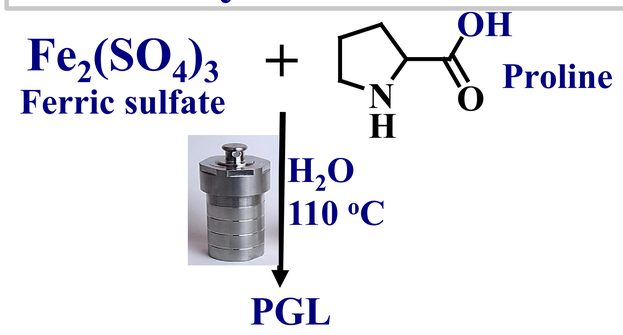
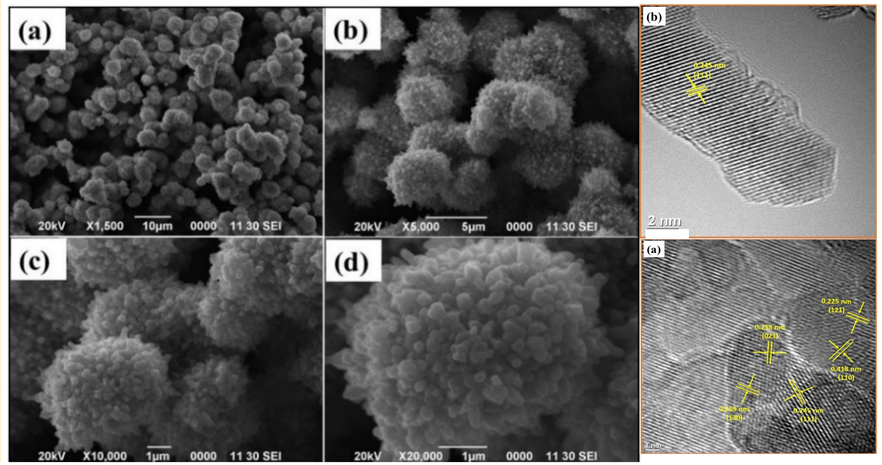
Introduction

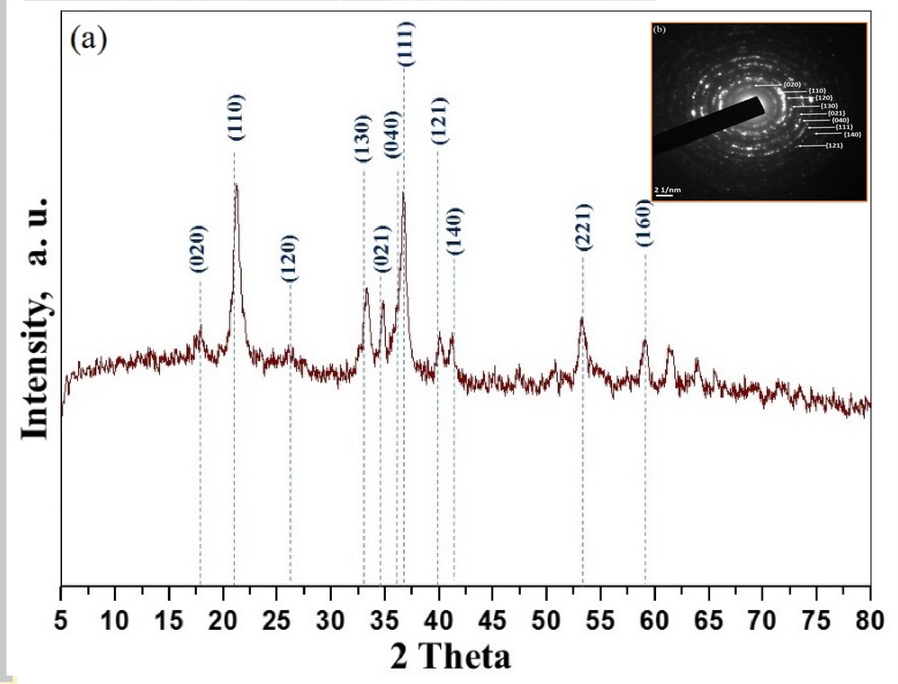
- α-Aminonitriles are very useful in the synthesis of bioactive natural products and pharmaceutically important heterocycles.
- The homogeneous catalyst used for this reaction facilitates the recycling and reuse of the reagents leading to the accumulation of large amount of chemical waste.
- Herein, we design and develop a material which adsorbs oxygen from air and use it as a co-oxidant in C-H activation of N-methylanilines.
- The synthesized goethite with lychee-like morphology has proven to be a very effective catalyst for an eco-friendly synthesis of α-amino nitriles by activating the C-H bond.
- By using protuberant lychee-like goethite (PLG), we perform cyanation of N-methylanilines using atmospheric oxygen in aqueous media under neutral conditions.

Synthesis of PLG

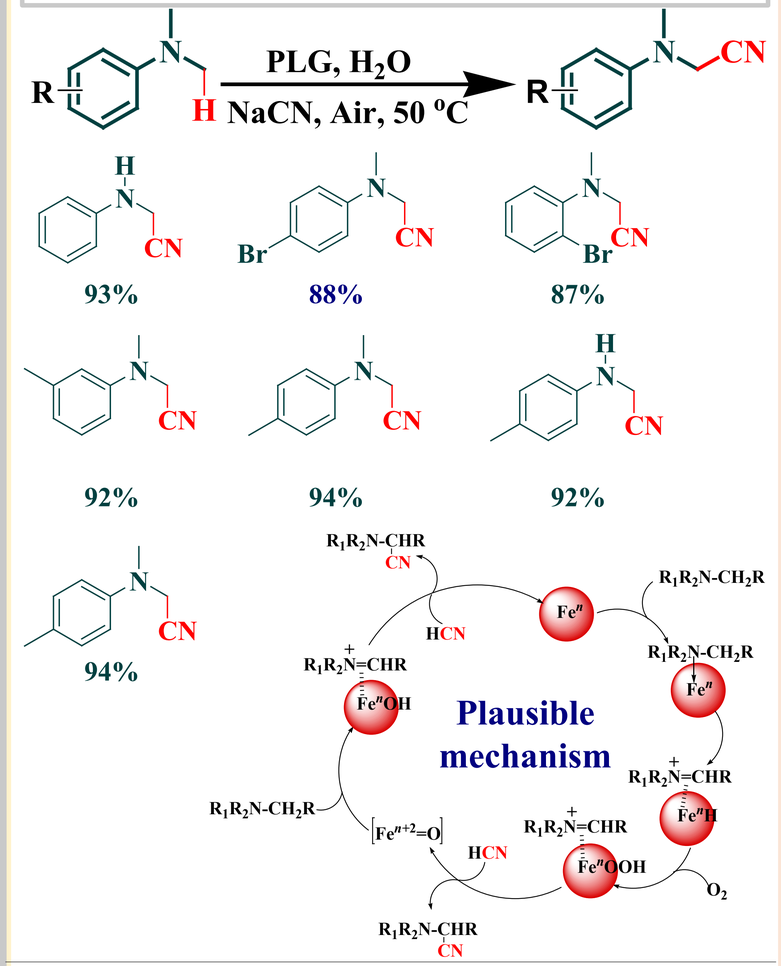


Characterization of PLG





Synthesis of α-aminonitriles *via* C-H activation



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