Porous nanomaterial catalysed green synthesis of some derivatives of indoles.

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ABSTRACT

Catalysis represents the cornerstone of chemistry, since catalytic processes are ubiquitous in almost all chemical processes developed for obtaining consumer goods. Nanocatalysis represents nowadays an innovative approach to obtain better properties for the catalysts: stable activity, good selectivity, easy to recover, and the possibility to be reused. Over the last few years, for the obtaining of new catalysts, classical methods—based on potential hazardous reagents—have been replaced with new methods emerged by replacing those reagents with plant extracts obtained in different conditions. Due to being diversified in morphology and chemical composition, these materials have different properties and applications, representing a promising area of research. In this context, the present review focuses on the metallic nanocatalysts' importance, different methods of synthesis with emphasis to the natural compounds used as support, characterization techniques, parameters involved in tailoring the composition, size and shape of nanoparticles and applications in catalysis. This review presents some examples of green nanocatalysts, grouped considering their nature (mono- and bi-metallic nanoparticles, metallic oxides, sulfides, chlorides, and other complex catalysts).