

Application of colloidal metalloporphyrin nanoparticles in catalytic oxidation reactions

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Abstract

Catalytic oxidation of organic substrates with different oxygen donors is one of the most effective methods in producing the important materials mainly for organic synthetic chemistry. Metalloporphyrins have been applied as biomimetic models of cytochrome P450s in the catalytic oxidation reactions [1]. since reusability of the catalyst become an important factor in industrial level, an efficient way in the development and improvement of catalytic systems is using heterogeneous catalysts. In the last decade, many scientists pay attention to the nanocatalyst because of the importance of particle size and surface area in the catalytic activity [2]. Employing different kinds of porous as support is a common method for preparation of nanocatalysts [3]. Unfortunately, most of the supports are expensive and also decrease catalytic activity. A new technique for development of nanocatalysts is preparing stable colloidal nanoparticles [4].

In present research, we prepare stable colloidal nanoparticles of β -brominated metalloporphyrins in the presence of stabilizing agent (PEG) under ultra-sound irradiation and used them as catalyst in the oxidation of olefins. The effect of various parameters on the stability and particle size of colloidal nanoparticles were also investigated.

References

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Figures

