

## Copper nanoparticles supported on coffee biomass for the catalytic oxidation of 1 phenylethanol

Ana Dias

Instituto Politecnico de Lisbon, Portugal

### Abstract

The synthesis of metal nanoparticles has gained a great significance in recent years due to their unique chemical and physical properties and potential applications in many fields such as catalysis, biosensors, cosmetics, electronics, drug delivery and tumor imaging.

Besides that carbon materials have been extensively studied in the past few decades, and numerous promising applications have been found in science and technology.

In this study, a cheap, ecofriendly and economically feasible route has been developed for the preparation of copper nanoparticles (CuNPs) using coffee biomass residue as catalytic support. The prepared catalytic material was characterized by ICP, FTIR and SEM.

The catalytic performance of the CuNPs supported on prepared Activated Carbon (AC) was investigated towards the oxidation of 1-phenylethanol to acetophenone. The obtained results showed an excellent yield (up to 98 %) and high selectivity to acetophenone. Various reaction parameters (amount of catalyst and oxidant, temperature and reaction time) were studied and reaction conditions optimized.

Received; March 10, 2022

Accepted; March 15, 2022

Published; March 30, 2022

### Biography

Ana Dias obtained her degree in Chemical Engineering from Instituto Superior de Engenharia de Lisboa (ISEL) in 2018. She is currently pursuing her M.S. degree under the supervision of Dr. Elisabete Alegria and Dr. Ana Ribeiro.