

Synthesis and characterization of mesoporous copper phosphate catalyst for the C-C reaction.

Hamiani Zohra^{1,2*}, Berrichi Amina^{1,2}, BachirRedouane¹

¹Laboratory of catalysis and synthesis in organic chemistry, university of Tlemcen, BP 119, 13000, Algeria.

² University of Ain Temouchent, 46000, Algeria.

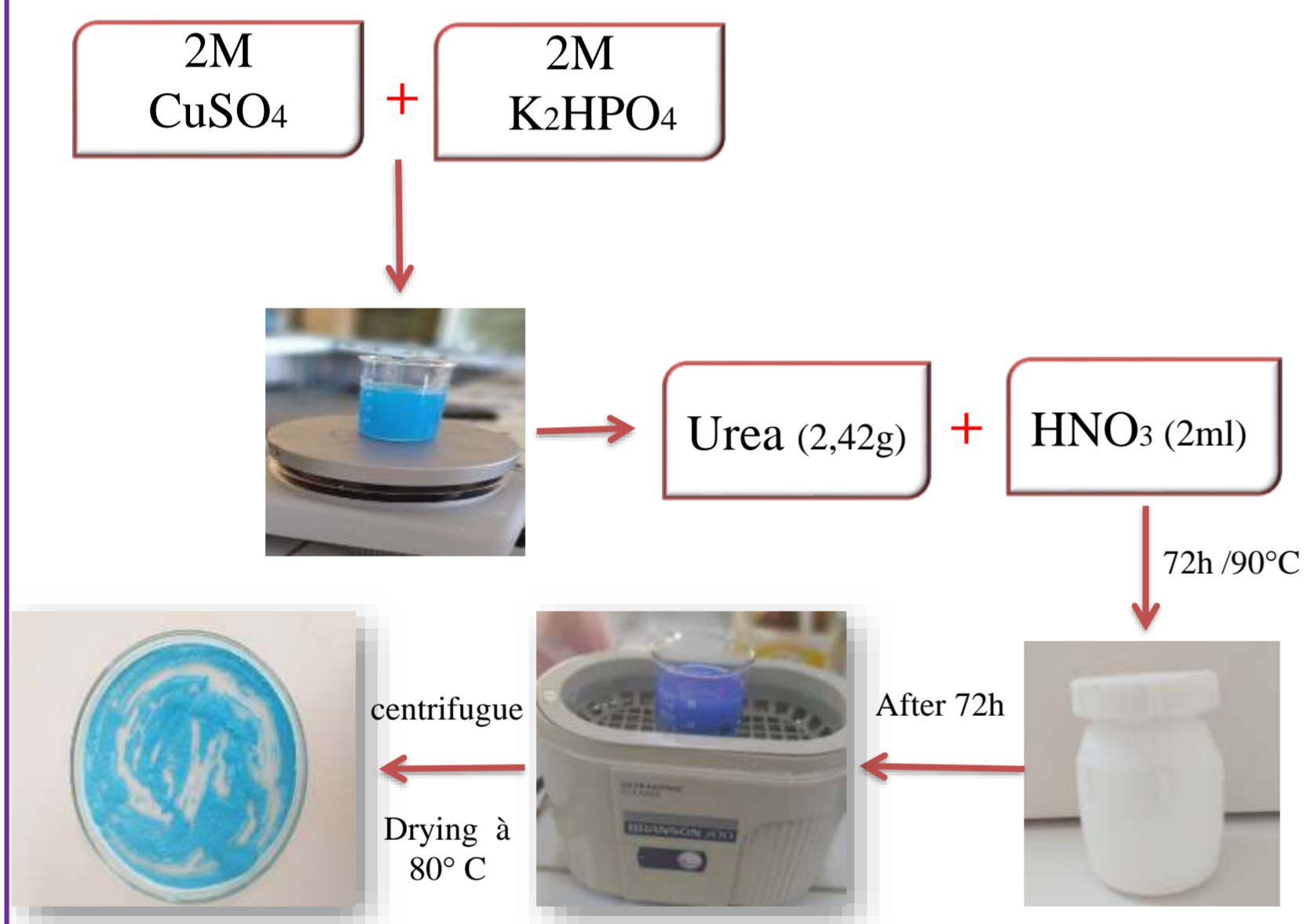
*Corresponding author e-mail: zahra.hamiani30@gmail.com

INTRODUCTION

The CuPO_4 material was prepared by hydrothermal route using urea without treatment. The material was characterized by XRD, IR and Raman microscopies. The mesoporous CuPO_4 nanoparticles exhibited a high surface area and a good activity in the propargylamines synthesis via A3 coupling with a short time reaction. The catalyst presented a high stability for six cycles without activity loss.

EXPERIMENTAL

Preparation of CuPO_4



Application in A3 coupling



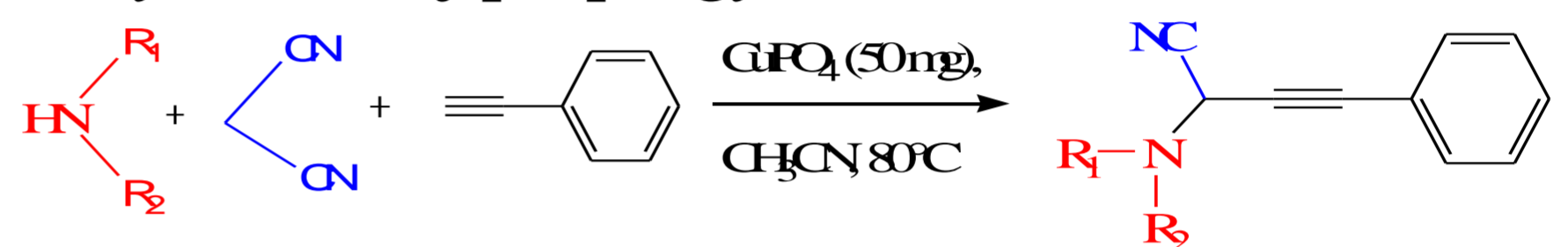
Reaction conditions:

Malonitrile(2mmol)
Diethylamine (2mmol)
Phenylacetylene (2mmol)

 CuPO_4 (50 mg), CH_3CN , 4h.

RESULTS AND DISCUSSIONS

Synthesis of propargylamine



Scheme 01. Propargylamines structures synthesized by A3 coupling reaction via CuPO_4 catalyst

Characterization of catalyst

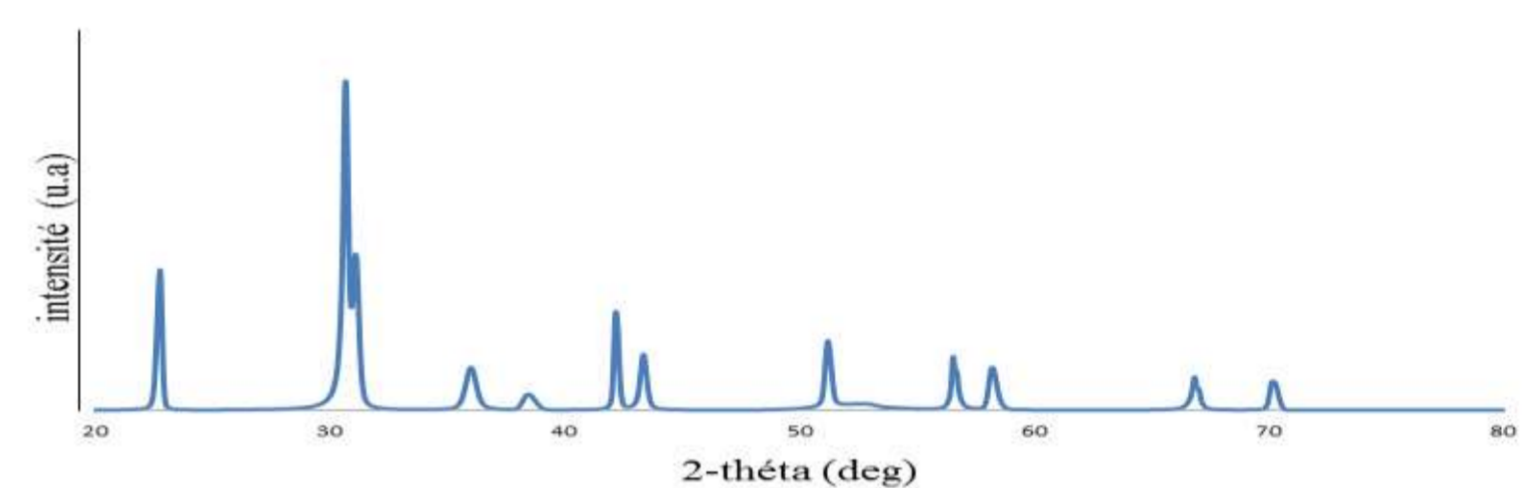


Figure 1 : XRD spectrum of CuPO_4

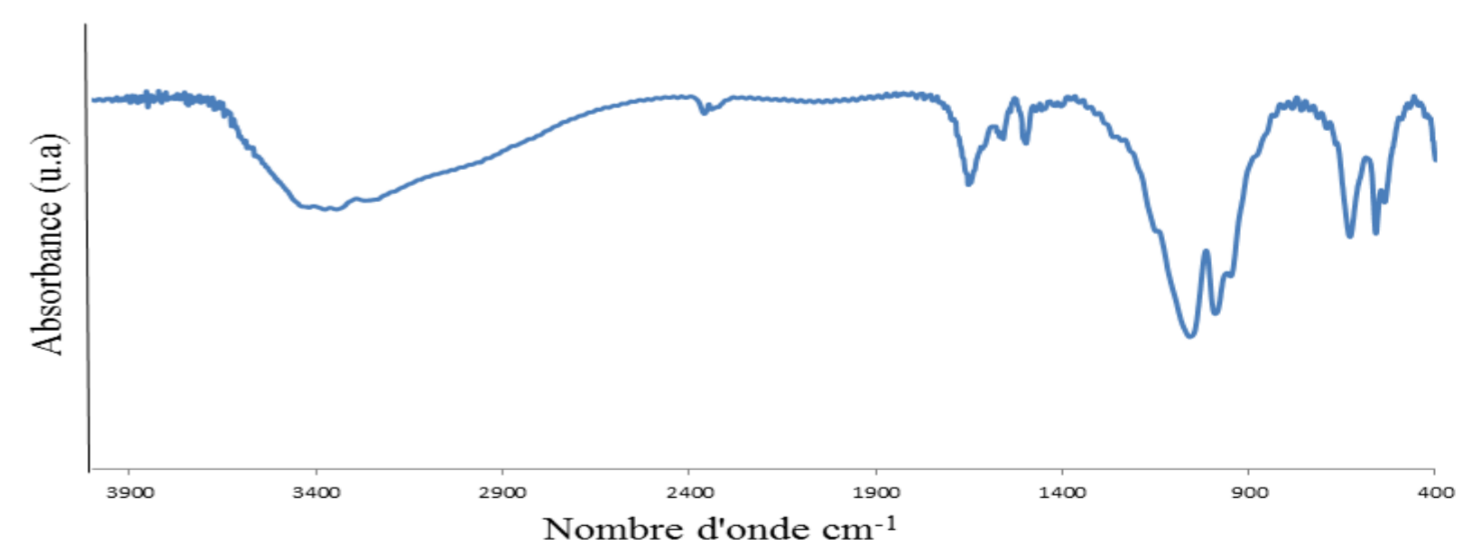
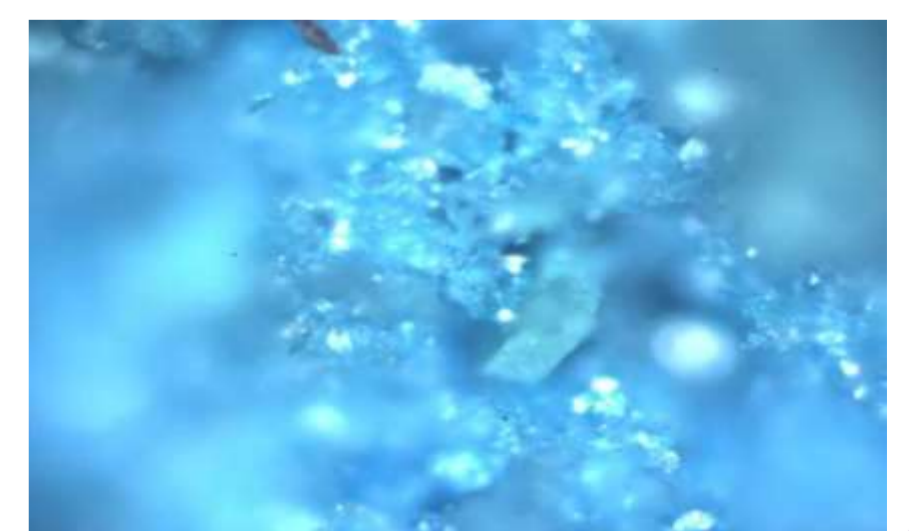


Figure 2 : FTIR spectrum of CuPO_4

Figure 3: Raman image of CuPO_4



CONCLUSION

The mesoporous CuPO_4 nanoparticles is an efficient catalyst for the propargylamine synthesis via A3 coupling reaction where it reduced the reaction time, with a high stability.