Alessandro Allegri

Date of birth: 28/01/1995

Nationality: Italian

Gender: Male

CONTACT

alessandro.allegri2@unibo.it

(+39) 3935751068

www.unibo.it/sitoweb/alessandro.allegri2/

ABOUT ME

Alessandro Allegri is a PhD student in Industrial Chemistry. His work focuses on the development of polymeric/inorganic composite materials for the catalytic valorization of biomasses.

EDUCATION AND TRAINING

01/11/2019 – CURRENT

PhD Student in Industrial Chemistry

Alma Mater Studiorum - University of Bologna

Development of hybrid polymeric-inorganic materials for the catalytic valorization of biomasses and biomass-derived molecules.

Supervisor: Prof.ssa Stefania Albonetti

06/11/2017 – 25/10/2019

Master's Degree in Industrial Chemistry

Alma Mater Studiorum - University of Bologna

Magna cum laude

27/10/2014 – 27/10/2017

Bachelor's Degree in Chemistry and Technologies for the Environment and Materials

Alma Mater Studiorum - University of Bologna

Magna cum laude

CONFERENCES AND SEMINARS

29/04/2021 – 30/04/2021

XVII CIRCC PhD Day

14/09/2021 – 23/09/2021 > – Milan, Italy

SCI 2021

XXVII Congress of the Italian Chemical Society

PUBLICATIONS

Photocatalytic oxidation of HMF under solar irradiation: Coupling of microemulsion and lyophilization to obtain innovative TiO2-based materials

2020 https://doi.org/10.3390/molecules25225225
Molecules 2020, 25(22), 5225
The photocatalytic oxidation of biomass-derived building blocks such as 5-hydroxymethylfurfural (HMF) is a promising reaction for obtaining valuable chemicals and the efficient long-term storage of solar radiation. In this work, we developed innovative TiO_2-based materials capable of base-free HMF photo-oxidation in water using simulated solar irradiation. The materials were prepared by combining microemulsion and spray-freeze drying (SFD), resulting in highly porous systems with a large surface area. The effect of titania/silica composition and the presence of gold-copper alloy nanoparticles on the properties of materials as well as photocatalytic performance were evaluated. Among the lab-synthesized photocatalysts, $Ti_{15}Si_{85}$ SFD and $Au_3Cu_1/Ti_{15}Si_{85}$ SFD achieved the higher conversions, while the best selectivity was observed for $Au_3Cu_1/Ti_{15}Si_{85}$ SFD. The tests with radical scavengers for both TiO_2-m and $Au_3Cu_1/Ti_{15}Si_{85}$ SFD suggested that primary species responsible for the selective photo-oxidation of HMF are photo-generated electrons and/or superoxide radicals.

Studio di catalizzatori per la riduzione della 5-idrossimetilfurfurale. [Master's Thesis]

2020 https://amslaurea.unibo.it/id/eprint/21685

Preparazione e caratterizzazione di membrane polimeriche catalitiche tramite elettrofilatura. [Master's Thesis]

2020 https://amslaurea.unibo.it/id/eprint/21692

Sintesi e caratterizzazione di catalizzatori a base di nanoparticelle di oro per l'ossidazione dell'HMF. [Master's Thesis]

2021 https://amslaurea.unibo.it/id/eprint/23182

Synthesis and characterisation of electrospun gold on ceria catalysts. [Master's Thesis]

2021 https://amslaurea.unibo.it/id/eprint/23192

Sviluppo di materiali compositi a base di Aquivion® PFSA per la valorizzazione catalitica del furfuril alcol. [Master's Thesis]

2021 https://amslaurea.unibo.it/id/eprint/23185