



Alessandro Allegri

DATE OF BIRTH:
28/01/1995


CONTACT

Nationality: Italian

Gender: Male

 alessandro.allegri2@unibo.it

 (+39) 3935751068

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

ABOUT ME

I am a PhD student in Industrial Chemistry. My 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

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 TiO₂-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, Ti₁₅Si₈₅ SFD and Au₃Cu₁/Ti₁₅Si₈₅ SFD achieved the higher conversions, while the best selectivity was observed for Au₃Cu₁/Ti₁₅Si₈₅ SFD. The tests with radical scavengers for both TiO₂-m and Au₃Cu₁/Ti₁₅Si₈₅ SFD suggested that primary species responsible for the selective photo-oxidation of HMF are photo-generated electrons and/or superoxide radicals.

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