

Preliminary Study on Light-Activated Antimicrobial Agents as Photocatalytic Method for Protection of Surfaces with Increased Risk of Infections

Razvan Bucuresteanu ^{1,2,*}, Lia-Mara Ditu ^{1,2,*}, Monica Ionita ³, Ioan Calinescu ³, Valentin Raditoiu ⁴, Bogdan Cojocaru ⁵, Ludmila Otilia Cinteza ⁶, Carmen Curutiu ^{1,2}, Alina Maria Holban ^{1,2}, Marius Enachescu ^{7,8}, Laura-Bianca Enache ⁷, Gabriel Mustatea ⁹, Viorel Chihaiia ¹⁰, Adela Nicolaev ¹¹, Elena-Larisa Borcan ^{11,12} and Grigore Mihaescu ^{1,2}

¹ Department of Microbiology, Faculty of Biology, University of Bucharest, Intr. Portocalelor no 1-3, 060101 Bucharest, Romania; razvan.bucuresteanu@drd.unibuc.ro (R.B.); carmen.curutiu@bio.unibuc.ro (C.C.); alina.m.holban@bio.unibuc.ro (A.M.H.); grigore.mihaescu@bio.unibuc.ro (G.M.)

² Faculty of Biology, Research Institute, University of Bucharest, Soseaua Paduri 90-92, 50663 Bucharest, Romania

³ Faculty of Applied Chemistry and Materials Science, University Politehnica of Bucharest, Splaiul Independenței no 313, 060042 Bucharest, Romania; ionita_monica@yahoo.com (M.I.); ioan.calinescu@upb.ro (I.C.)

⁴ Laboratory of Functional Dyes and Related Materials, National Institute for Research & Development in Chemistry and Petrochemistry—ICECHIM, 202 Splaiul Independentei, 6th District, 060021 Bucharest, Romania; vraditoiu@icechim.ro

⁵ Department of Organic Chemistry, Biochemistry & Catalysis, Faculty of Chemistry, University of Bucharest, Bdul Regina Elisabeta 4-12, 030016 Bucharest, Romania; bogdan.cojocaru@chimie.unibuc.ro

⁶ Department of Physical Chemistry, Faculty of Chemistry, University of Bucharest, Bdul Regina Elisabeta 4-12, 030016 Bucharest, Romania; ocinteza@gw-chimie.math.unibuc.ro

⁷ Center for Surface Science and Nanotechnology, University POLITEHNICA of Bucharest, 313 Splaiul Independentei, 060042 Bucharest, Romania; marius.enachescu@cssnt-upb.ro (M.E.); laura.bianca@cssnt-upb.ro (L.-B.E.)

⁸ Academy of Romanian Scientists, 54 Spaiul Independentei, 050094 Bucharest, Romania

⁹ National R&D Institute for Food Bioresources—IBA Bucharest, 5 Ancuța Băneasa Street, 020323 Bucharest, Romania; gabi.mustatea@bioresurse.ro

¹⁰ Institute of Physical Chemistry “Ilie Murgulescu”, Romanian Academy, Splaiul Independentei 202, 060021 Bucharest, Romania; vchihaia@icf.ro

¹¹ Department of Surfaces and Interfaces, National Institute of Materials Physics, Atomistilor 405A, 077125 Magurele, Romania; adela.nicolaev@infim.ro (A.N.); elena-larisa.borcan@drd.unibuc.ro (E.-L.B.)

¹² Faculty of Physics, University of Bucharest, Atomistilor 405, 077125 Magurele, Romania

* Correspondence: lia-mara.ditu@bio.unibuc.ro; Tel.: +40-04-0745-67-38-22

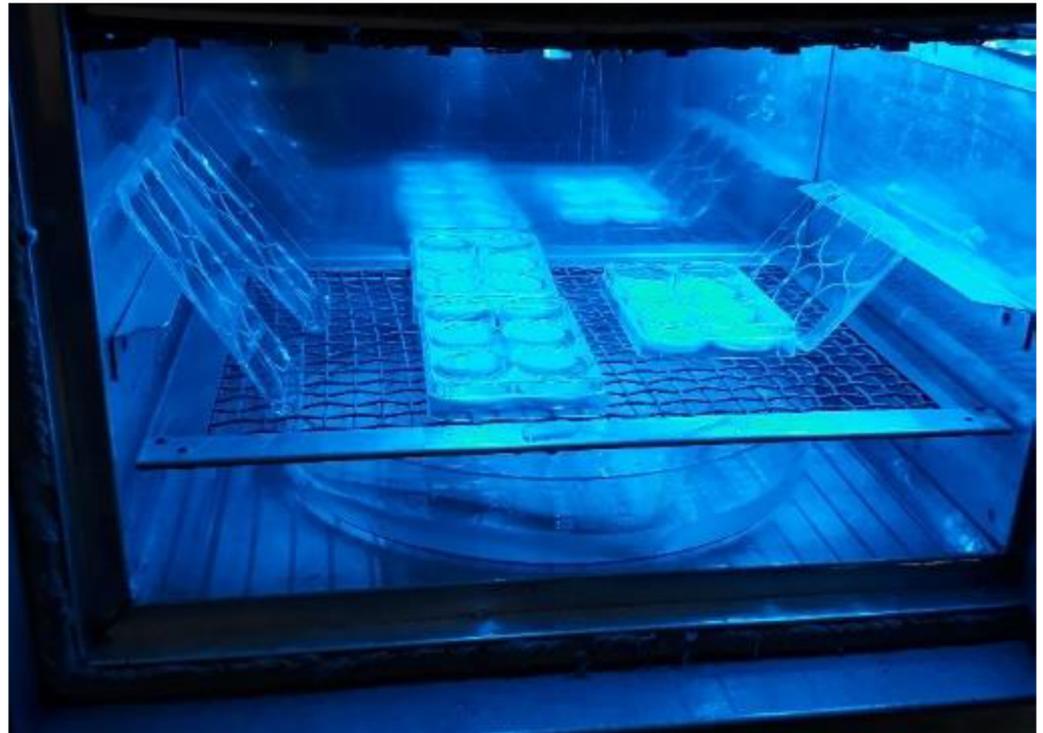


Figure S1. Samples exposure to blue light (470 nm) generated by a commercial light led source with 470 nm wavelength emission 11 spectrum.

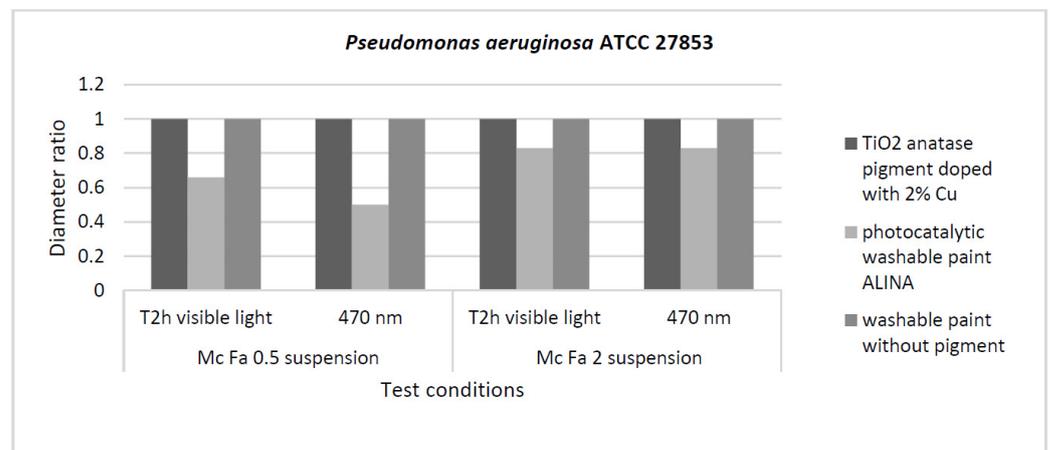


Figure S2. Graphic representation of inhibition zone diameters expressed as diameter ratio, obtained for *P. aeruginosa* ATCC 27853 15 after incubation in two different conditions: visible light and blue light (470 nm).

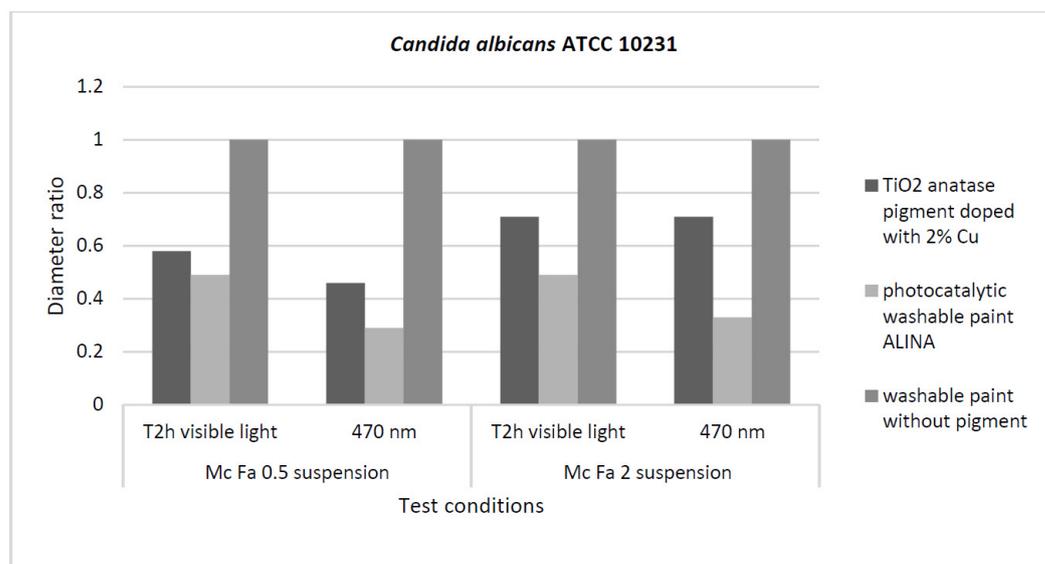


Figure S3. Graphic representation of inhibition zone diameters expressed as diameter ratio, obtained for *C. albicans* ATCC 10231 18 after incubation in two different conditions: visible light and blue light (470 nm).