



IFSC

UNIVERSIDADE
DE SÃO PAULO

Instituto de Física de São Carlos



Antimicrobial Photodynamic Therapy (aPDT)

Cristina Kurachi

São Carlos Institute of Physics
University of São Paulo



Antimicrobial resistance

The screenshot shows the homepage of healthpolicy-watch.org. At the top, there's a navigation bar with icons for search, refresh, and user account. The URL 'healthpolicy-watch.org' is in the address bar. Below the header, the 'Health Policy Watch' logo is displayed, featuring a stylized green eye icon and the text 'Health Policy Watch' and 'Independent Global Health Reporting'. To the right of the logo are links for 'Home', 'About', a magnifying glass icon for search, and social media icons for Twitter and Facebook. A horizontal menu bar below the logo includes five categories: 'Antimicrobial Resistance', 'Infectious Diseases', 'Pandemics & Emergencies', 'Non-Communicable Diseases', and 'Health in Sustainable Development Goals'.

“No Time To Wait” – AMR Could Cause 10 Million Deaths Annually By 2050, Warns UN Report

29/04/2019 by Elaine Ruth Fletcher

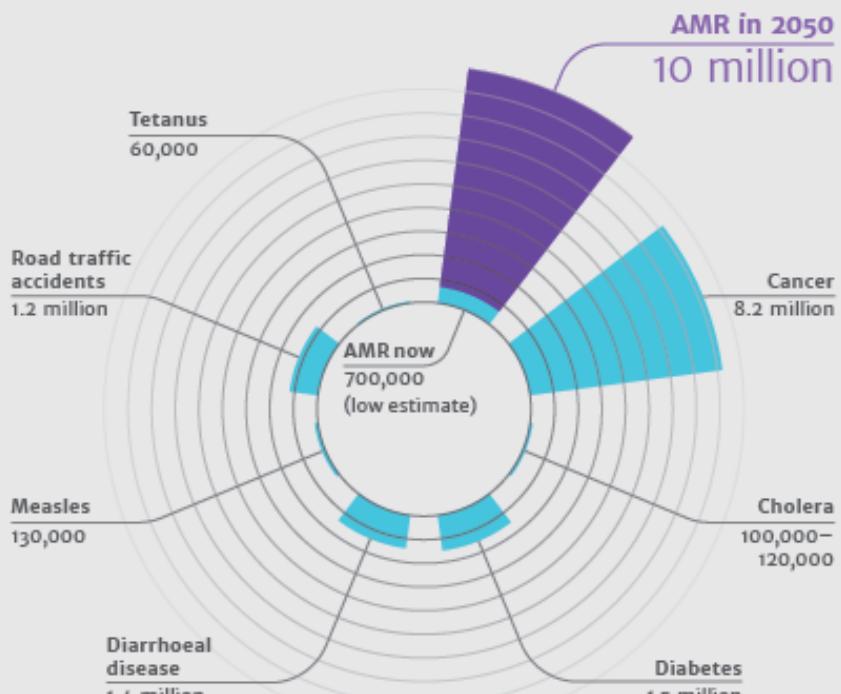
Share this:



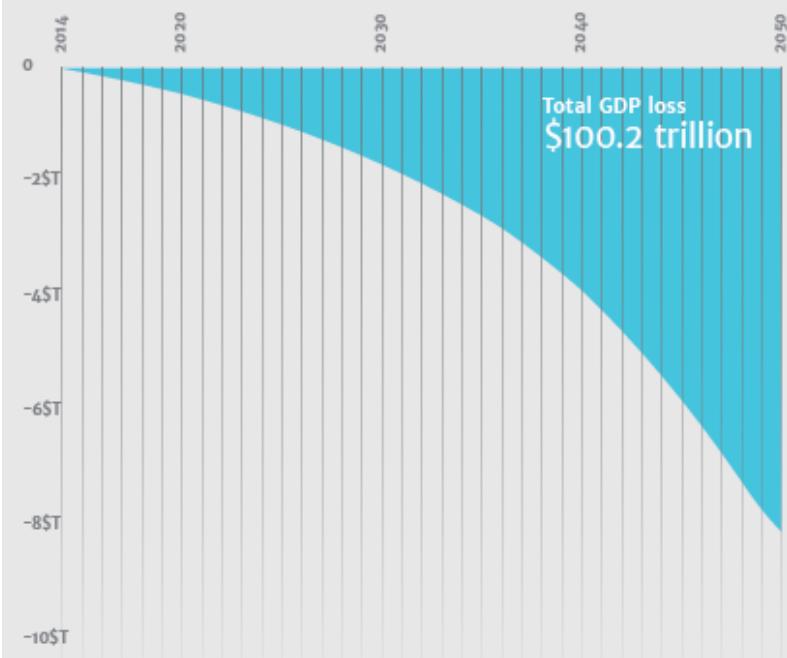
Deaths from infections resistant to common antibiotics, antivirals and anti-parasitic drugs could increase more than ten-fold to 10 million deaths annually by 2050, warns a ground-breaking United Nations report released today.

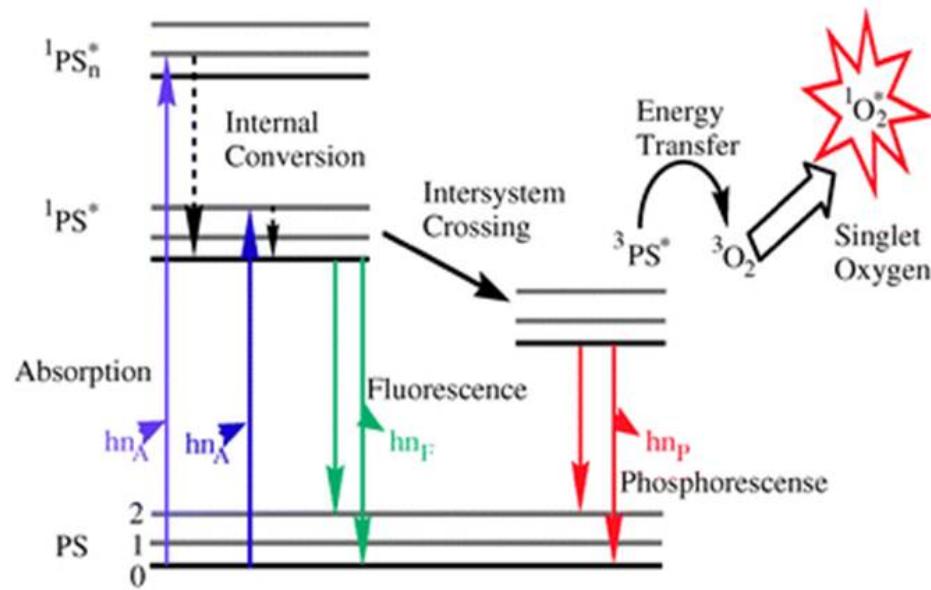
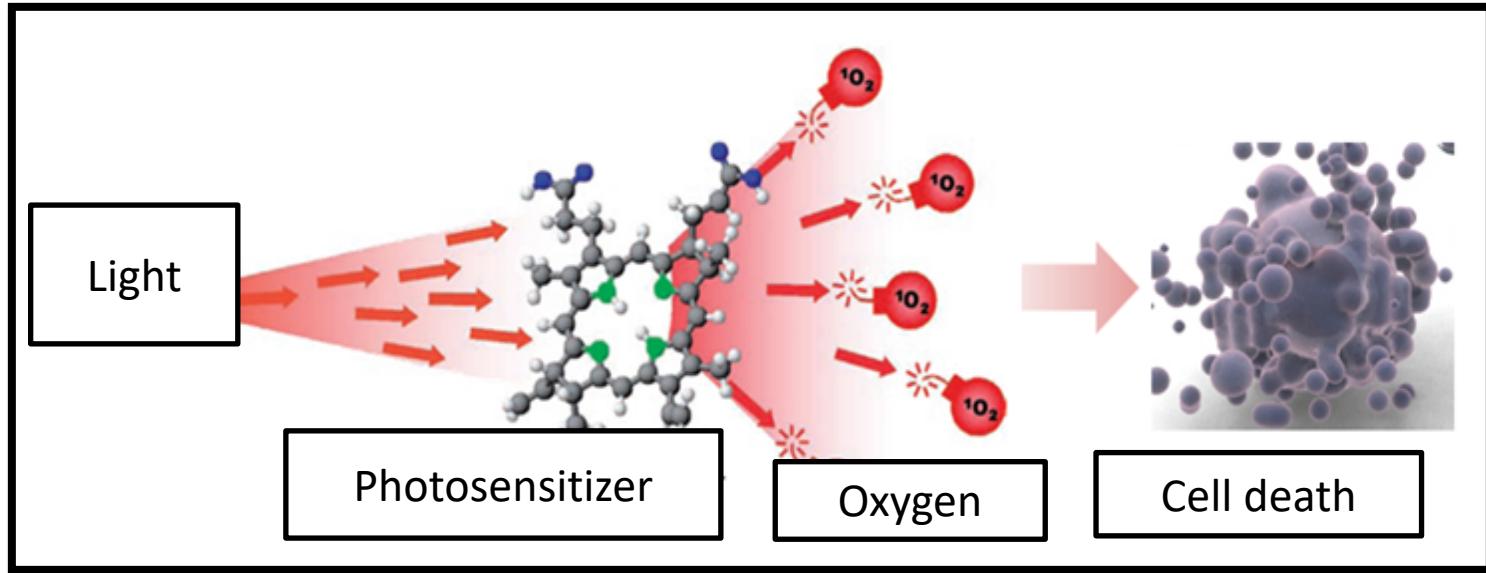
"There is no time to wait. Unless the world acts urgently, antimicrobial resistance will have disastrous impact within a generation," warns the report by the [UN Ad Hoc Interagency Coordinating Group on Antimicrobial Resistance \(IACG\)](#), led by the World Health Organization together with the Food and Agriculture Organization (FAO) and the World Organization for Animal Health (OIE).

Deaths attributable to AMR every year compared to other major causes of death



AMR's impact on World GDP in trillions of USD





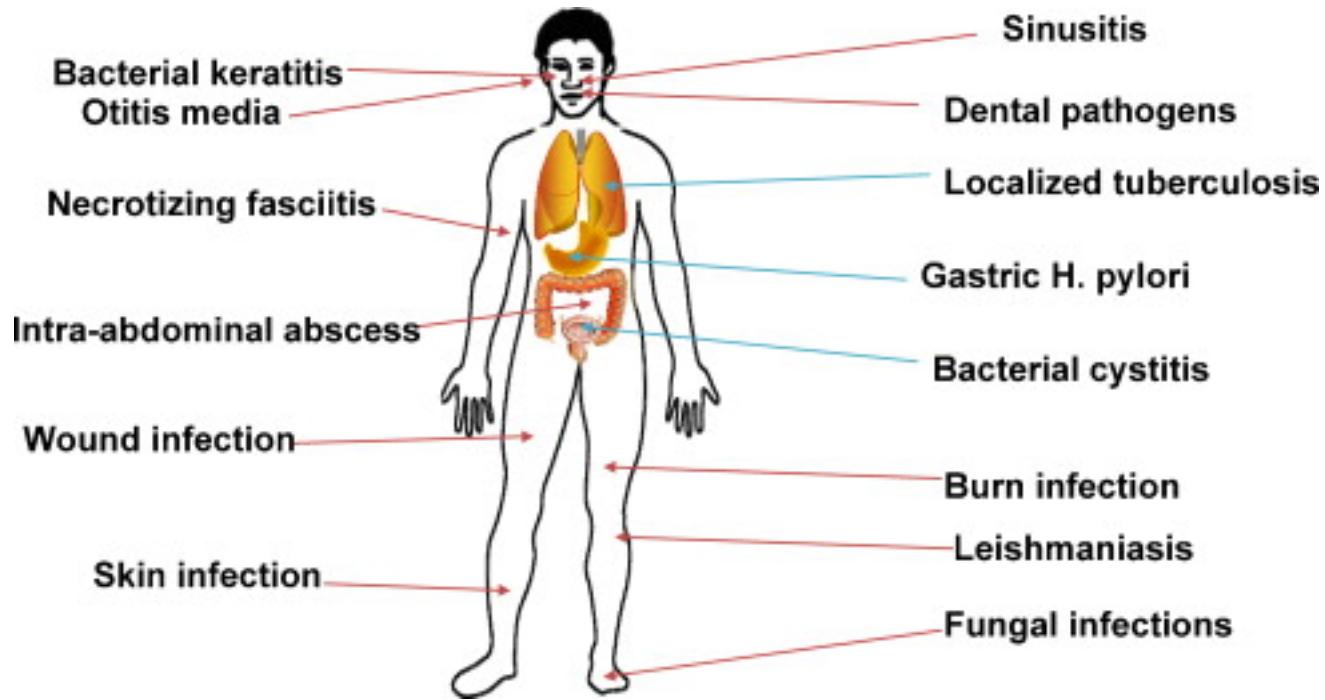
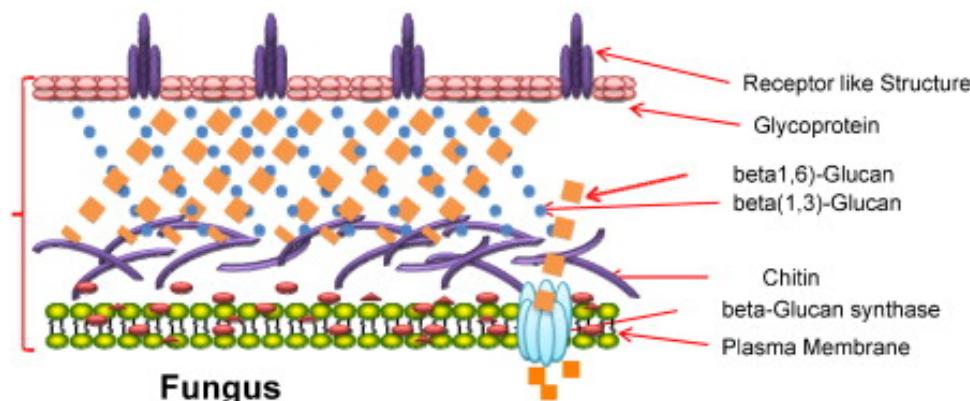
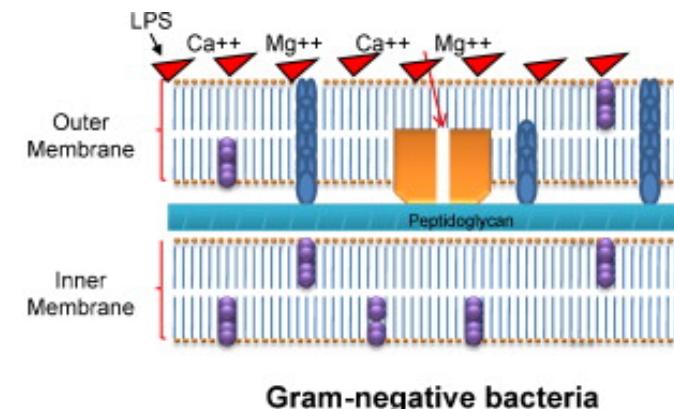
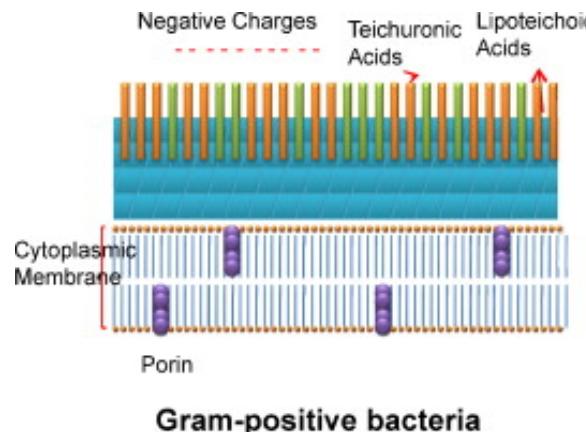


Figure 9. Candidate infectious diseases for PDT. A wide variety of localized infections could be clinically treated by antimicrobial PDT.

Cell wall characteristics

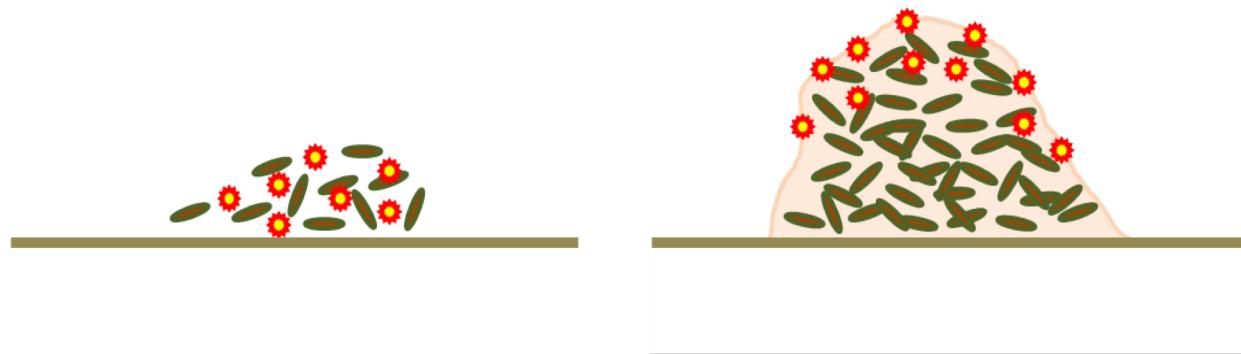


MOs planktonic *versus* biofilm

● → fotossensibilizador

○ → bactéria

■ → matriz



Application of the chlorins chl-e6 e chl-e6H in PDT

Aeromonas hydrophila (Gram-negative)

Fluence = 30J/cm², t=16min, LED, λ = 660nm.

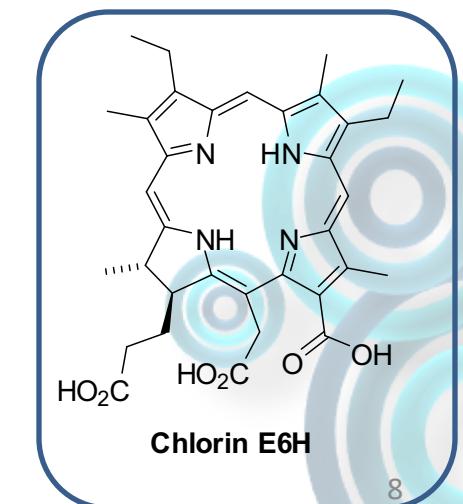
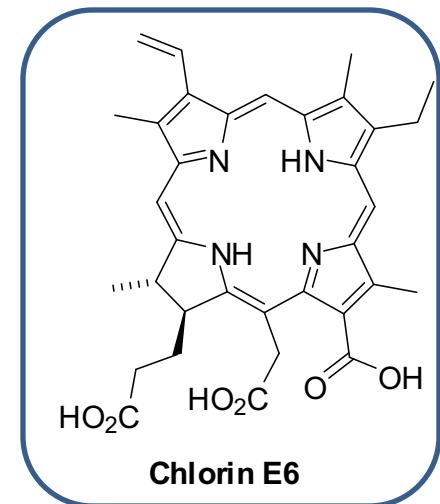
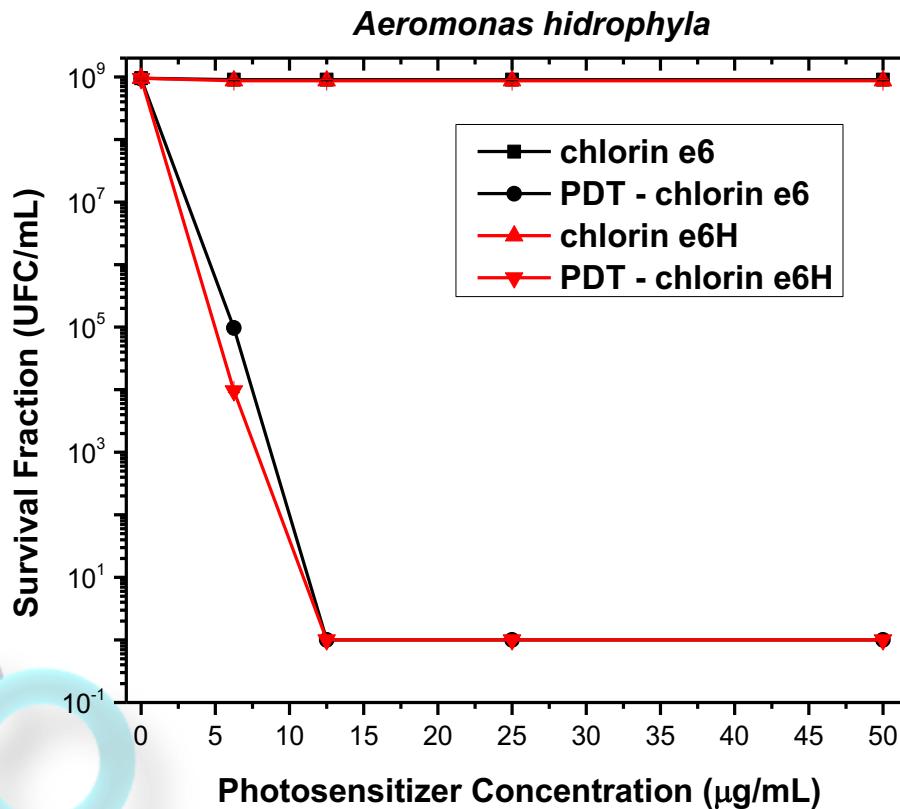


Figure 5: Effect of chlorins chl-e6 and chl-e6H against *Aeromonas hidrophyla*.

Application of the chlorins chl-e6 e chl-e6H in PDT

Staphylococcus aureus (Gram-positive)

Fluence = 30J/cm², t=16min, LED, λ = 660nm.

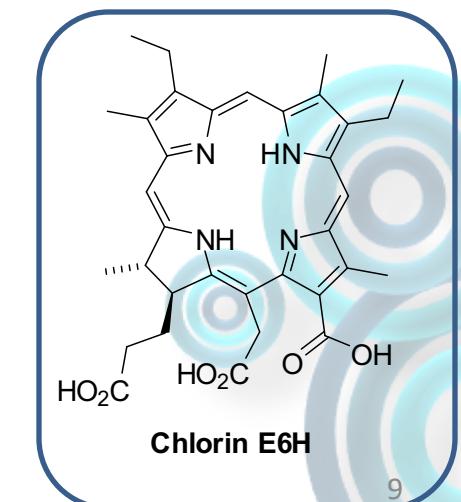
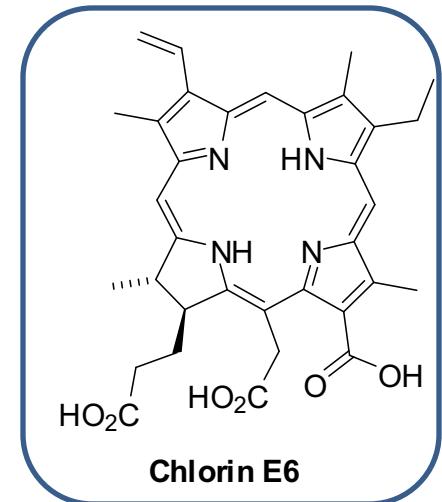
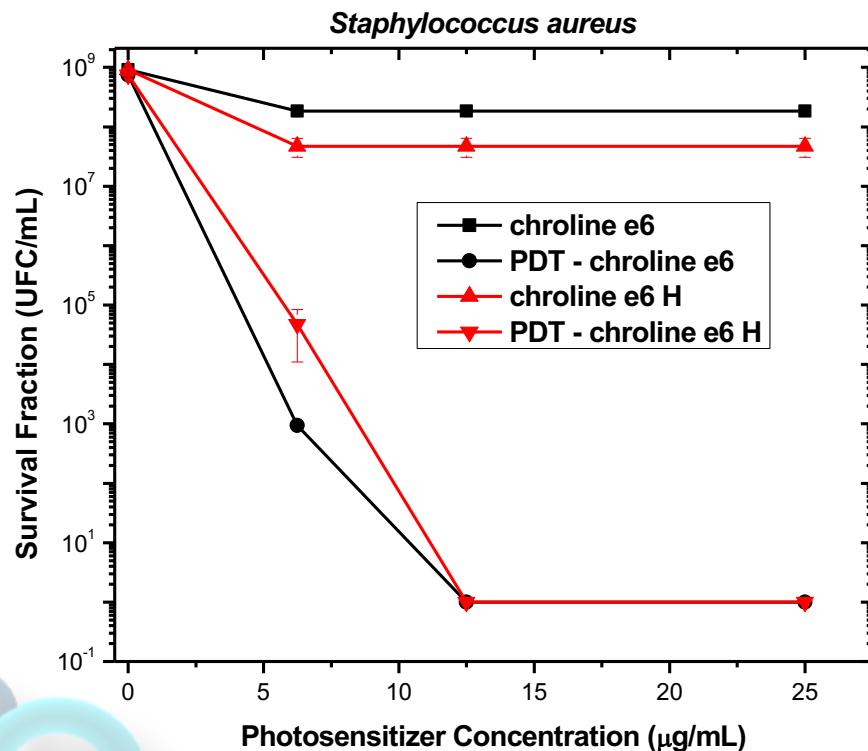


Figure 6: Effect of chlorins chl-e6 and chl-e6H against *Staphylococcus aureus*.

Application of the chlorins chl-e6 e chl-e6H in PDT

Candida albicans (fungus)

Fluence = 30J/cm², t=16min, LED, λ = 660nm.

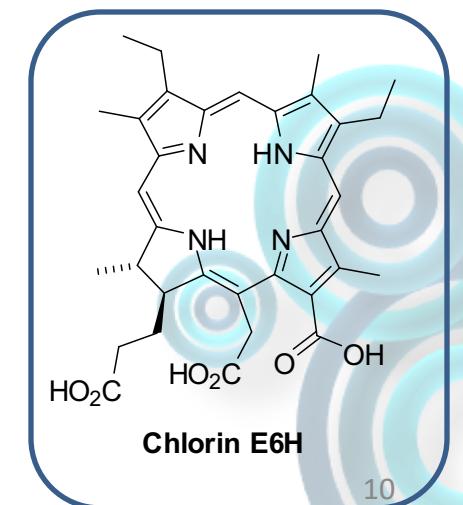
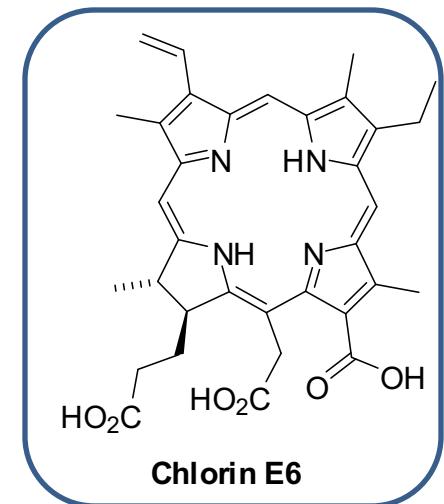
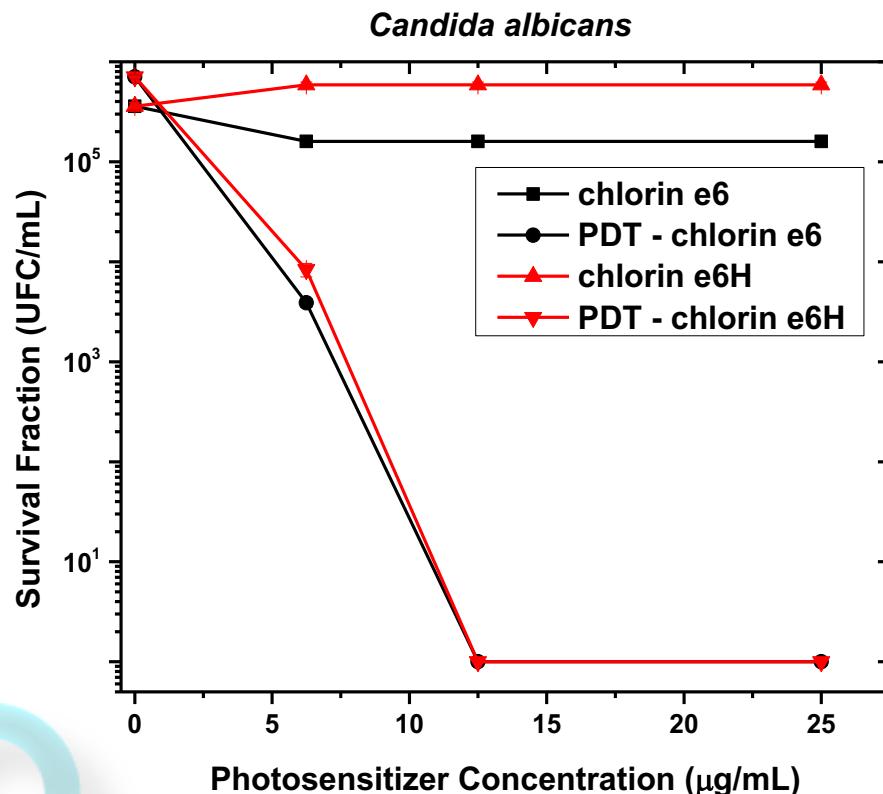


Figure 7: Effect of chlorins chl-e6 and chl-e6H against *Candida albicans*.