QED Disinfection of Ebola and Drinking Water in the Developing World

17

Thomas Prevenslik
QED Radiations
Discovery Bay, Hong Kong, China

Introduction

The WHO estimates:

- Ebola virus has caused 10,000 deaths
- 1 billion people do not have safe drinking water.

But in the developing world,

Electricity to power UV-C LEDs or boil water is not available

Proposal

QED induced EM radiation from body heat in a hand-held zinc oxide nano-coated aluminum bowl produces the UV- C to inexpensively disinfect Ebola & drinking water without electricity.

Ebola

Drinking water

Results

On-going
- Fabrication of 50 nm zinc oxide coated bowls
- UV-C measurements

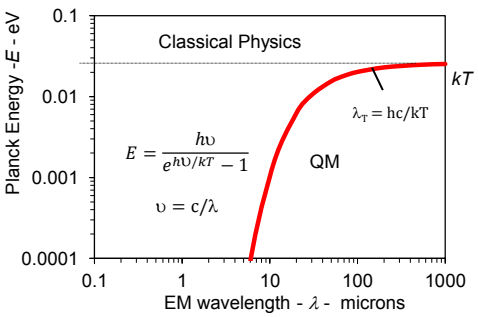
Planned
UV-C Disinfection tests of E-coli

Method

QED converts body heat from the hand holding the bowl to UV-C radiation because the temperature of the nano-coating cannot increase by QM.

QED = Quantum electrodynamics
QM = Quantum Mechanics
UV-C = UV at 254 nm

Heat capacity of the Atom



Body Heat

Human body heat power s about 100 W.

Since the average surface area for adult men and women is about 1.75 m^2, the body heat Q is,

Q ~ 6 mW/cm^2

Disinfection Dosages

- Ebola: disinfection dosage 0.4 mJ/cm^2
- Drinking water disinfection dosage 38 mJ/cm^2

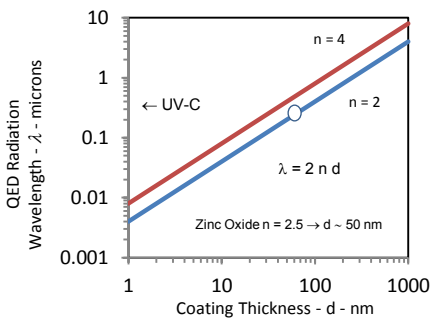
Protocols

(Q ~ 6 mW/cm^2)

Ebola
Move bowl over surface in 1 second scans

Drinking water
Hold water in bowl for 7 seconds

QED Radiation



Zinc Oxide n = 2.5 → d ~ 50 nm

Conclusions

QED induced UV-C disinfection of Ebola and drinking water in hand-held bowls:

- QED uses body heat - no need for electricity
- QED is more efficient in the UV-C than LEDs
- Inexpensive – Governments give to people
- Simple - Allows people to do the disinfection

Solicitation

The applications of QED induced UV-C radiation in the disinfection of infectious diseases require funding which is beyond the resources of the author

Collaboration and Funding is solicited.

References

G. Ferrero, "UV disinfection in developing Countries," UNESCO IHE, Delft, The Netherlands, November 6, 2014
T. Prevenslik, "QED Disinfection of Drinking Water in the Developing World," 8th International Conference on Thermal Engineering Theory and Applications (ICTEA), May 18-21, 2015, Amman-Jordan
T. Prevenslik, "Disinfection of Ebola in the Developing World," World Congress & Expo on Nanotechnology and Materials Science, April 13-15, Dubai.
T. Vatansever, C. Ferraresi, MV Pires de Sousa, et al., "Can biowarfare agents be defeated with light? " Virulence; 4:796–825., 2013.

Site Citations

T. Prevenslik, Diverse QED applications at http://www.nanoqed.org, 2009-2015.