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Centre for Textile
Science and Technology

Micro
Summit
2022
25th November | Porto

Assessing textile antiviral properties

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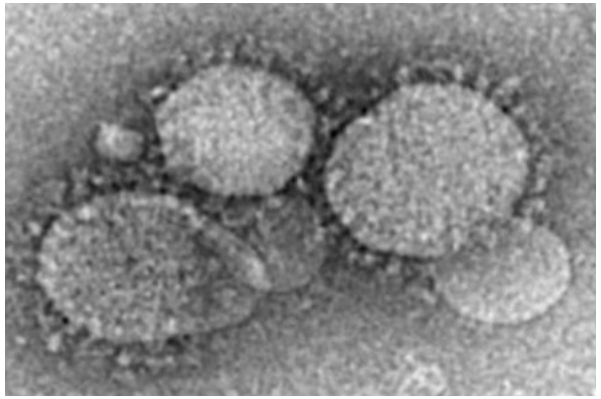
https://www.coe.int/en/web/genderequality/women-s-rights-and-covid-19

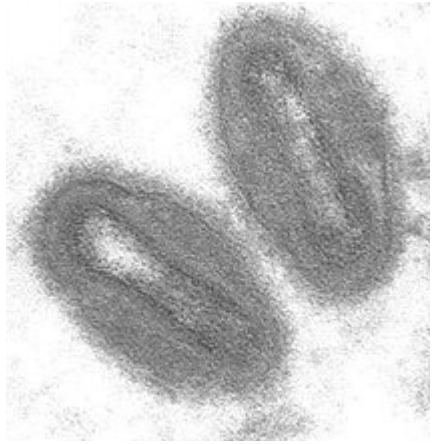
Current viral outbreaks

- Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)



DOI: 10.1145/3411760

- Monkeypox virus



DOI: 10.4314/ajcem.v19i4.9

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https://www.ahu.edu/blog/the-importance-of-ppe

https://www.cloroxpro.com/products/clorox/clorox-disinfecting-wipes/

https://www.advancedsciencenews.com/improving-medical-textiles-using-polymers/

https://www.popsci.com/article/science/how-sneeze-particles-travel-inside-airplane/

https://www.walmart.com/ip/PG-Air-Filter-PA99431-Fits-2005-10-Audi-A8-Quattro-2007-10-S8/976618744

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Antiviral assessment

American Association of Textile Chemists and Colorists **(AATCC) 100-TM100**

Test method for antibacterial finishes on textile materials: assess

International Organization for Standardization **(ISO) 18184**

Determination of antiviral activity of textile products

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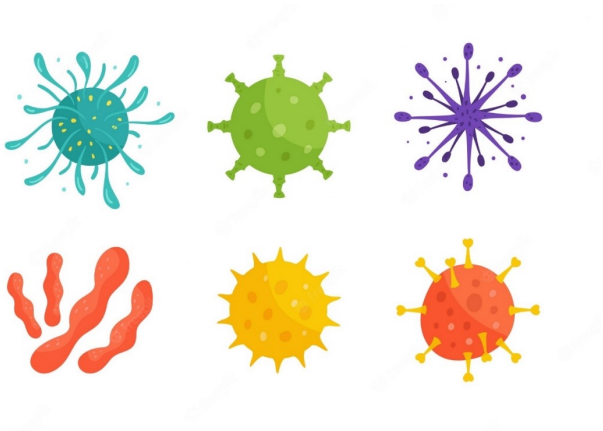
Antiviral assessment

Advantages

Direct contact

https://en.wikipedia.org/wiki/Respiratory_droplet

Focused on virus



https://www.freepik.com/free-photos-vectors/virus

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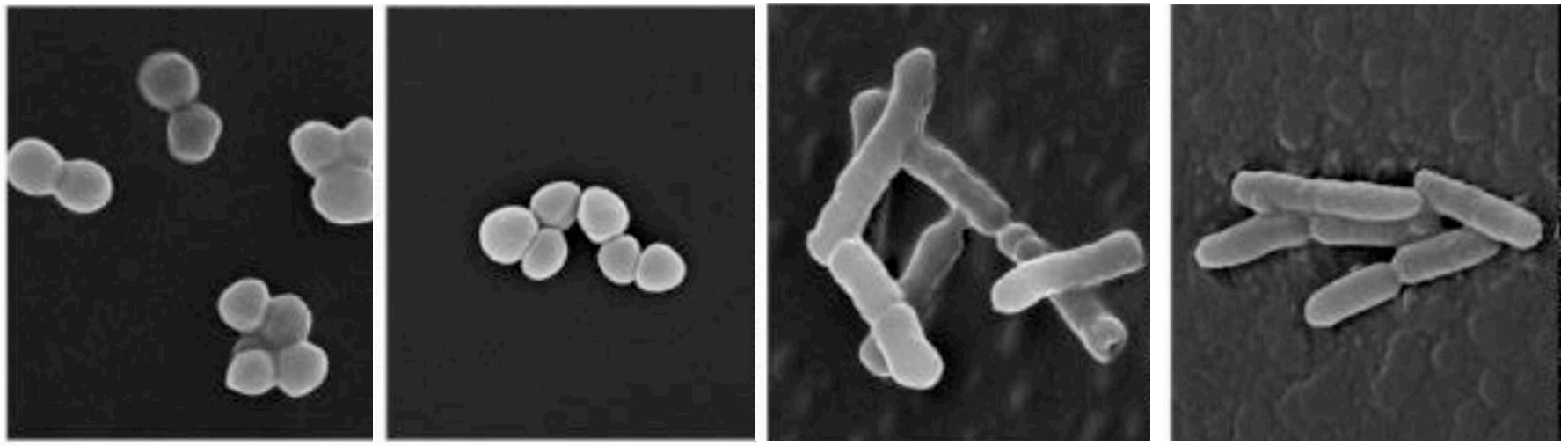
Disadvantages



DOI:10.3390/antibiotics9060314

Indirect contact
Mammalian cells as hosts

https://vacuu-lan.com/

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Merge and adapt

+

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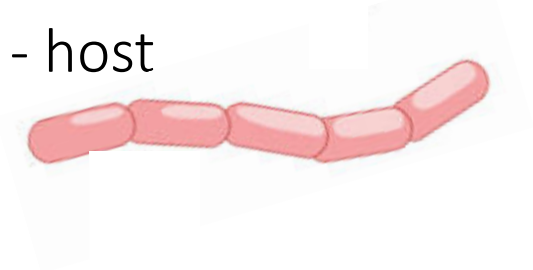
Antiviral assessment

Direct contact

Bacteriophage - virus

Bacterium - host



https://www.news-medical.net/health/What-is-a-Virus.aspx
https://microbiologysociety.org/why-microbiology-matters/what-is-microbiology/bacteria.html
https://www.creativesafetysupply.com/wall-sign/biosafety-level-2/

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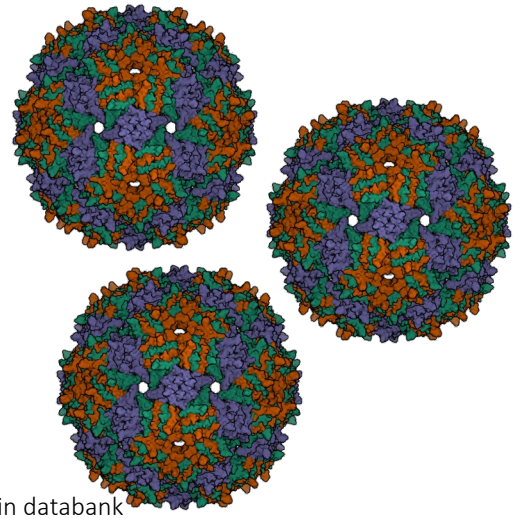
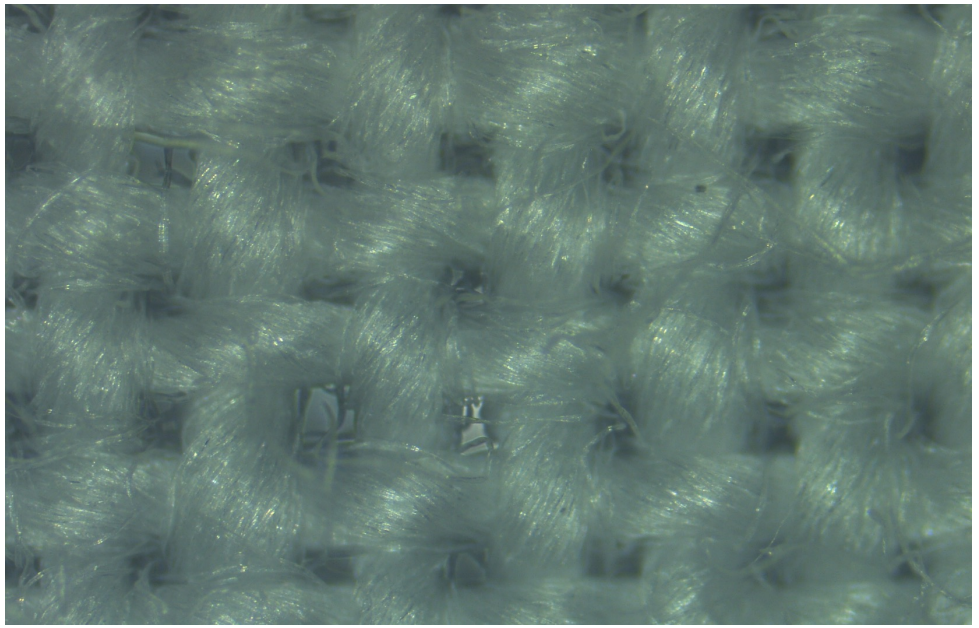
Antiviral assessment protocol development

Inoculum

1 x10^{7} PFU mL^{-1}



Protein databank



MS2 bacteriophage ATCC 15597-B1

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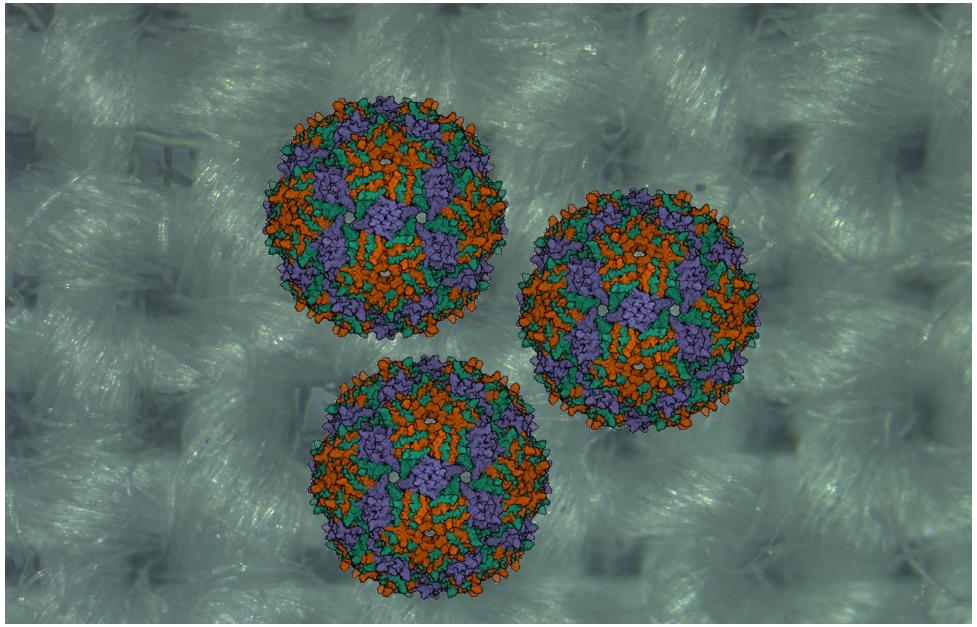

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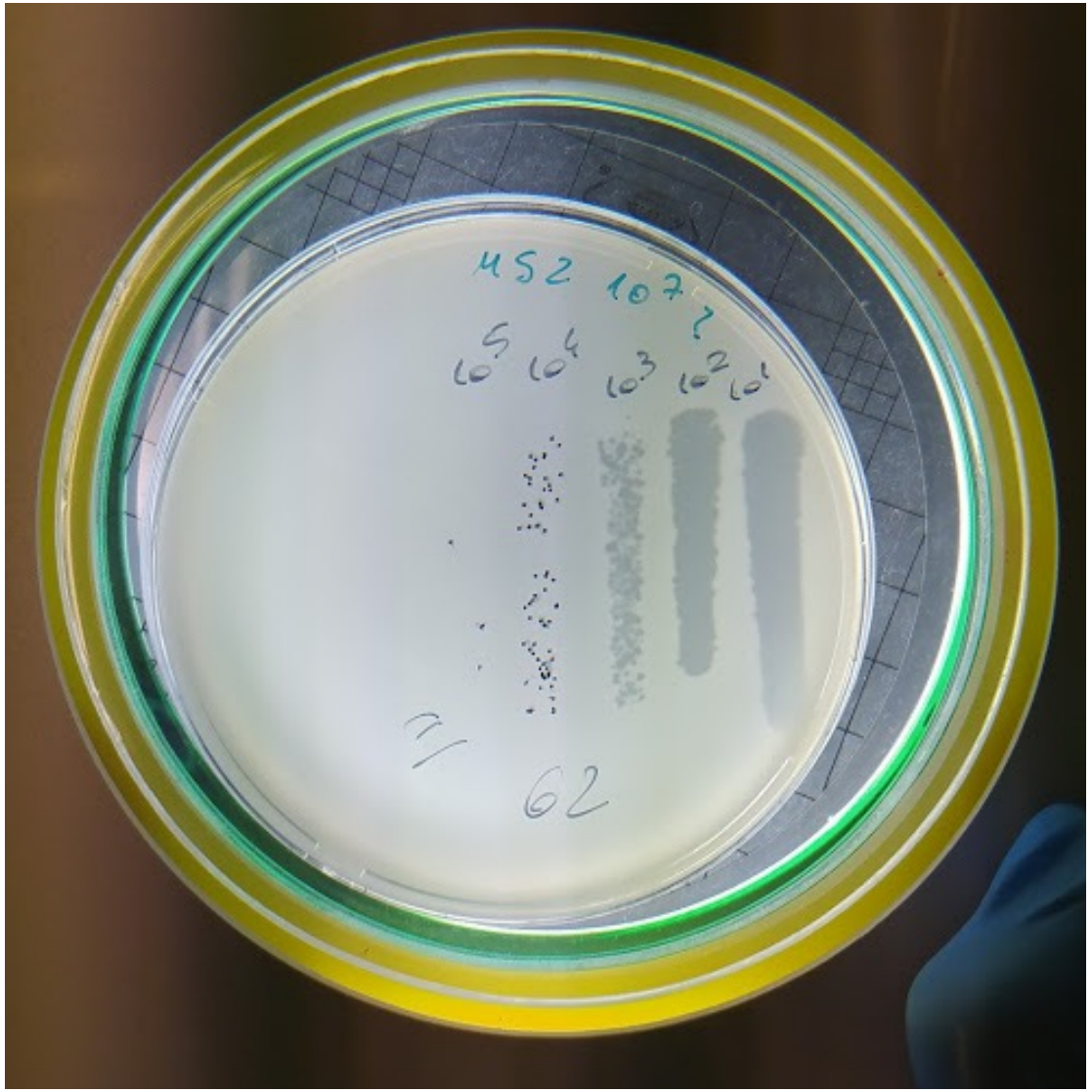

Escherichia coli ATCC 15597

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Case study

FCT Fundação para a Ciência e a Tecnologia

Development of a room for the a large scale sterilization of personal protective equipment (PPE) in Hospitals through ultraviolet-C irradiation (UV-C) for reuse

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Antiviral assessment protocol development

MS2 bacteriophage

DOI: 10.3389/fmicb.2016.01911

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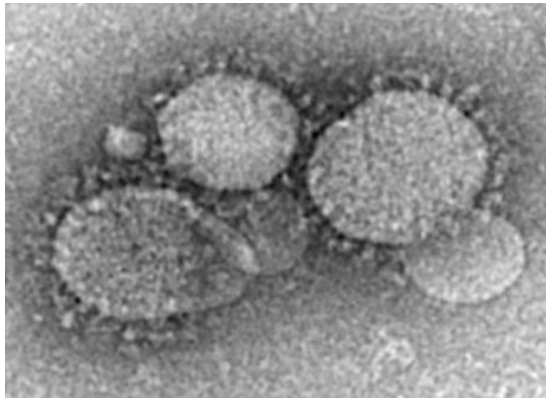
ICVS
Life and Health Sciences Research Institute
Instituto de Investigação em Ciências da Vida e Saúde

ICVS/3B's
Associate
Laboratory
University of Minho

Universidade do Minho
Escola de Ciências da Saúde



SARS-CoV-2

DOI: 10.3390/ijerph19084854

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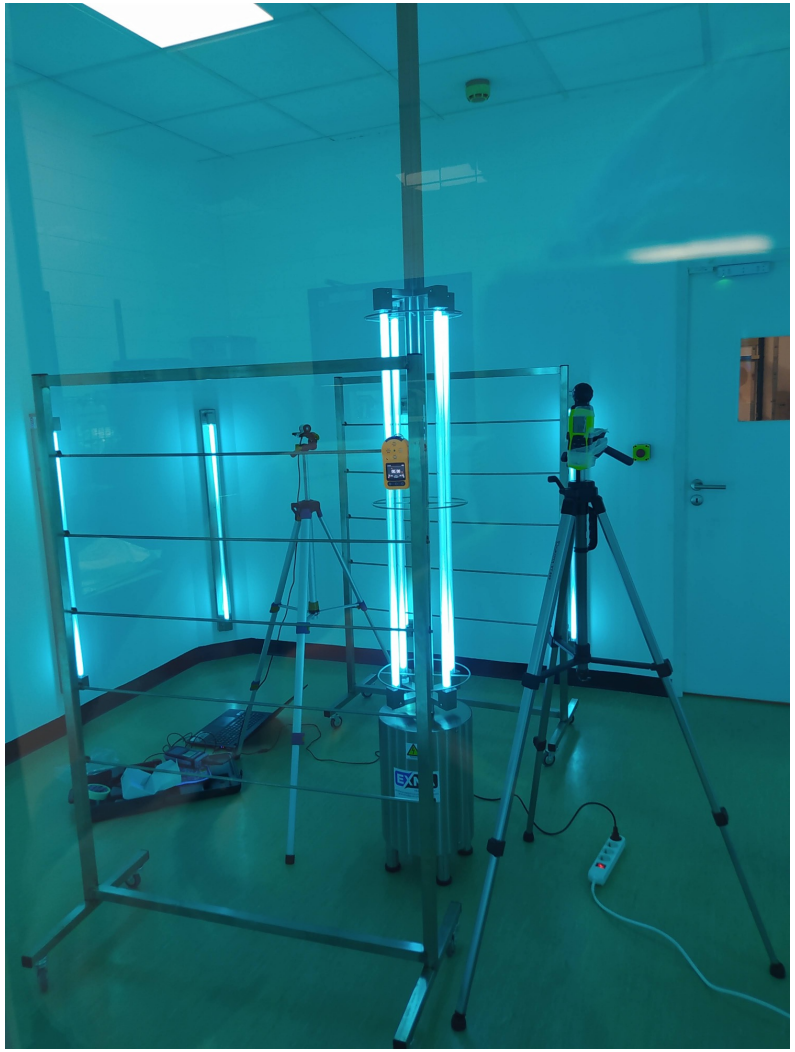
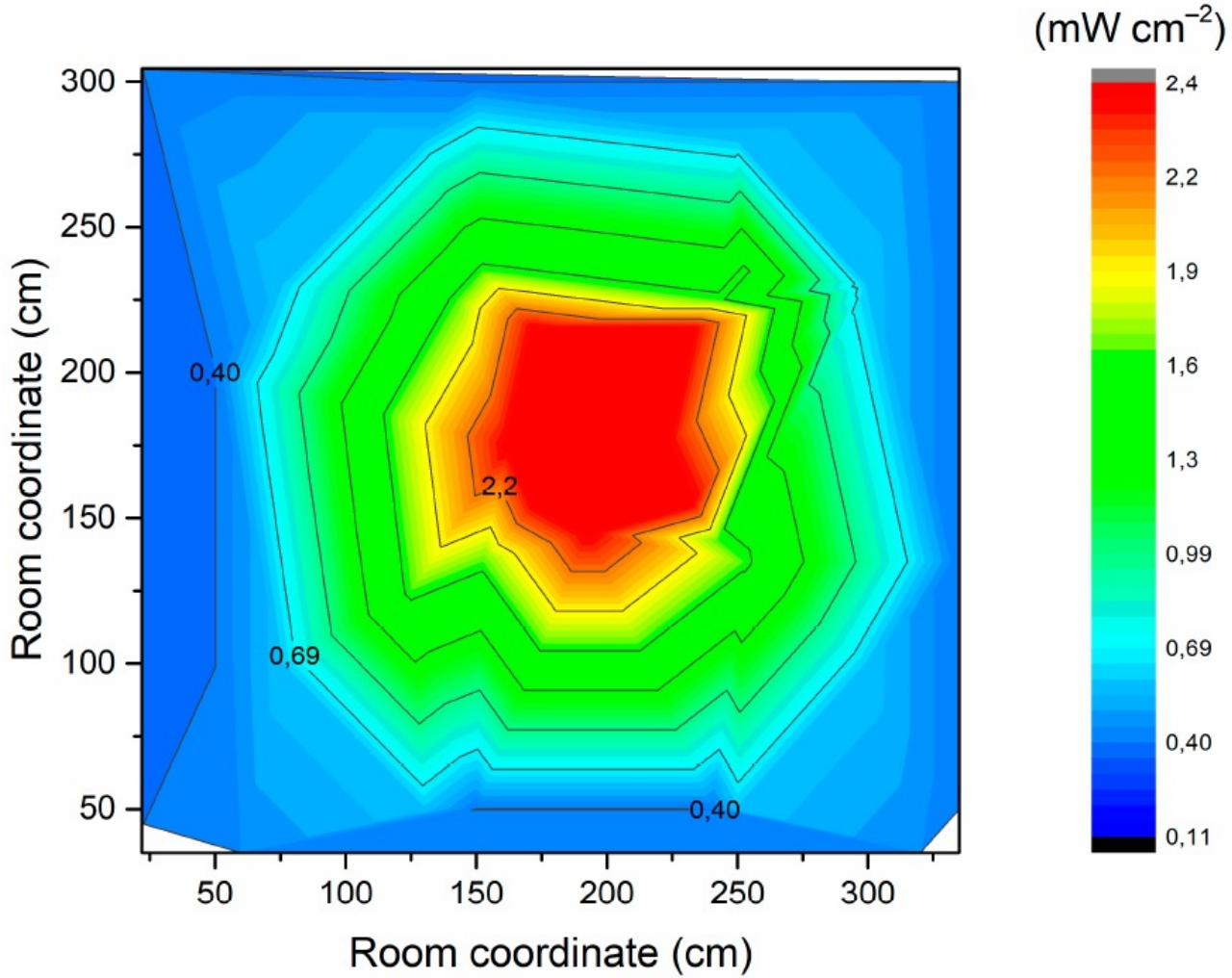
MATOSINHOS





35 min = 2073.5 mJ cm^{-2}

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