

Univerza v Ljubljani,
Zdravstvena fakulteta



Javna agencija za znanstvenoraziskovalno
in inovacijsko dejavnost Republike Slovenije

Raziskovalni projekti je (so)financiran s strani Javne agencije za znanstvenoraziskovalno in inovacijsko dejavnost RS.

Raziskovalni projekt

Članica UL	UL Zdravstvena fakulteta
Šifra	N1-0264
Naziv projekta	Antibakterijske in protivirusne lastnosti nano prevlečenih površin
Obdobje	1.11.2022 - 30.04.2024
Letni obseg	0,96 FTE
Vodja	dr. sc. Nives Matijaković Mlinarić
Veda	Naravoslovje, fizika
Sodelujoče RO	/
Vsebinski opis projekta	<p>V vsakdanjem življenju virusi in bakterije resno ogrožajo javno zdravje. Njihova zgradba jim omogoča, da se vežejo na različne površine, z dotikom onesnaženih površin pa se lahko širijo in prenašajo naprej. Zaradi izjemnih lastnosti, prilagodljivosti za prilagajanje naboja, arhitekture in dimenzionalnosti so kovinski nanodelci (NP) priznani kot obetavna sredstva za boj proti virusom in bakterijam. Cilj predlaganega projekta je celovita študija protibakterijskih in protivirusnih lastnosti površin, prevlečenih z NP-ji cinkovega oksida in bakrovega oksida, kot</p>

so tekstil, plastika in kovina. Inovativni vidik predlaganega projekta temelji na dveh možnih mehanizmih, ki ju bomo podrobno raziskali: i) inaktivacija mikrobov ob stiku s prevlečenimi kovinskimi delci zaradi sproščanja kovinskih ionov; ii) zmanjšanje ali onemogočanje adsorpcije mikrobov na testiranih površinah. Cilj predlaganega projekta je razviti enostaven "vsakdanji" postopek nanoprevleke, ki bi se lahko uporabljal za površinsko obdelavo tekstilnih in kovinskih površin v trgovinah, bolnišnicah in drugih objektih z visokim dnevnim kroženjem ljudi.

Sestava projektne skupine /

Bibliografske reference [Bibliografske reference](#)

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Research project is co-financed by the Slovenian Research and Innovation Agency.

Research project

UL member	UL, Faculty of Health Sciences
Code	N1-0264
Project title	Antibacterial and antiviral properties of nano-coated surfaces
Duration	1.11.2022 – 30.4.2024
Range per year	0,96 FTE
Head	PhD Nives Matijaković Mlinarić
Research activity	Natural sciences and mathematics / Physics
Research partner organizations	/

Abstract

In daily life, viruses and bacteria pose a serious threat to public health. Their structure allows them to bind on different surfaces, and they can be spread by touching the contaminated surfaces and being transferred further on. Due to remarkable characteristics, properties, and flexibility for the tailoring of the charge, architecture, and dimensionality, metal nanoparticles (NPs) are recognized as promising agents for battling viruses and bacteria. The aim of the proposed project is a comprehensive study of the antibacterial and antiviral properties of zinc oxide and copper oxide NP-coated surfaces

such as textile, plastic, and metal. The innovative aspect of the proposed project is based on two possible mechanisms that will be investigated in detail: i) inactivation of the microbes when in contact with coated metallic particles due to the release of metal ions; ii) lowering or disabling the adsorption of microbes on the tested surfaces. The proposed project aims to develop an easy “day-to-day” nanocoating procedure that could be used for surface treatment of textile and metal surfaces in stores, hospitals, and other facilities with a high daily circulation of people.

Researchers

[Research group](#)

Citations for bibliographic records

[Bibliographic records](#)