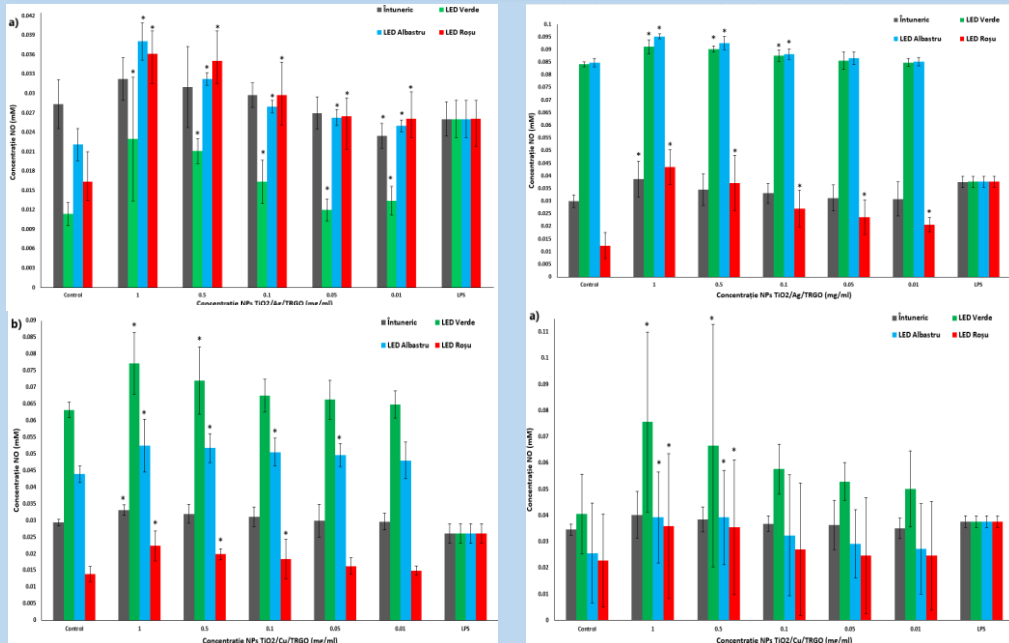


Skin Cells Photooxidized with Titanium Systems Excited with VIS Light

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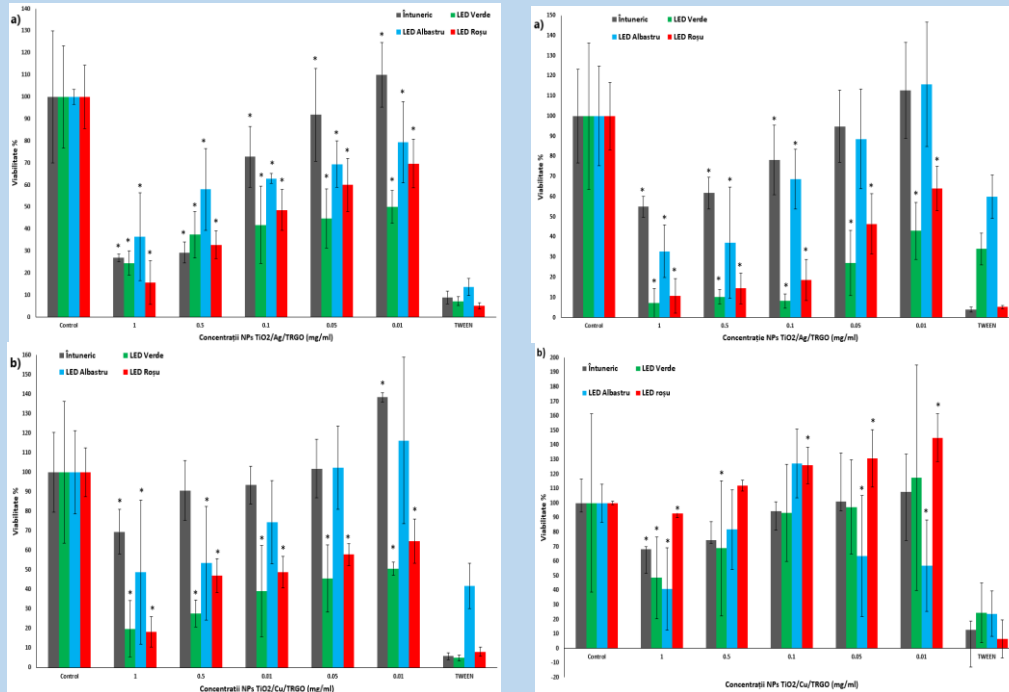
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Introduction: The combination of nanoscience and biology strengthens the fight against pathogenic microorganisms and lead to improve treatments. Nanoparticles have an important role, it can induce several photo processes , like photooxidation, photobiomodulation and photodynamic.



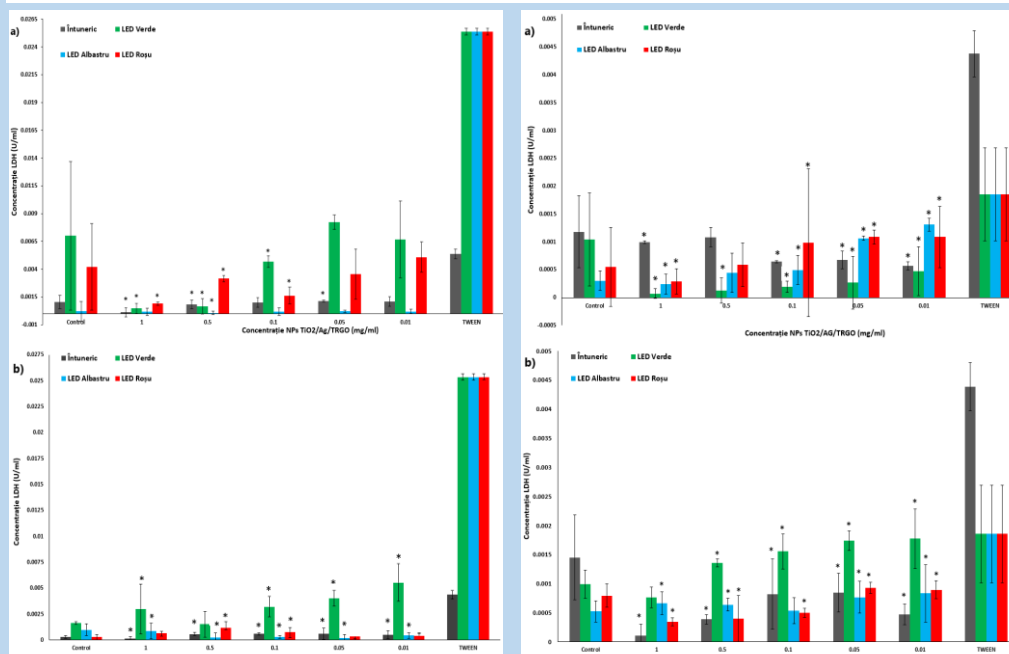
Materials and Methods: Two human cell lines (A375 and HaCaT) were treated with two nanomaterial mixtures. The cells were incubated for 24 hours and in the presence of VIS light (blue, green, red) and in the absence of light. Three test were made for measuring the cytotoxicity and oxidative stress: MTT, LDH, NO. In the end the absorbance was read with the spectrophotometer Biotek Epoch

Figure 1 & 2. The amount of nitric oxide (NO) produced by the A375 & HaCaT cell lines following treatment with a) TiO₂ / Ag / TRGO and b) TiO₂ / Cu / TRGO (I) exposed for 24 hours to the dark, Green LED, Blue LED and Red LED. p (*) values < 0.05 were considered statistically significant compared to the untreated control group.



Results and Discussion: The results proved that toxicity induced by the NPs damaged the A375 cell line much more compared to the HaCaT cell line and that the mixture with silver had the most aggressive effect. It also has shown that the mixture of nanoparticles have an antitumoral effect.

Figure 3 & 4. The viability, in percentage, of A375 & HaCaT cells after treatment with a) TiO₂ / Ag / TRGO and b) TiO₂ / Cu / TRGO (I) exposed for 24 hours to the dark, Green LED, Blue LED and Red LED. p (*) values < 0.05 were considered statistically significant compared to the untreated control group



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Figure 5 & 6 . The release of lactate dehydrogenase (LDH) by A375 and HaCaT cells treated with a) TiO₂ / Ag / TRGO and b) TiO₂ / Cu / TRGO (I) exposed for 24 hours to the dark, Green LED, Blue LED and Red LED. p (*) values < 0.05 were considered statistically significant compared to the untreated control group