Bio-tech

Antibacterial mixture of juglone and silver for combating Staphylococcus aureus



About the solution

The invention relates to an antibacterial mixture containing juglone (5-hydroxy-1,4-naphthoquinone) and silver nanoparticles, showing synergistic bactericidal activity against Staphylococcus aureus, including antibiotic-resistant strains.

The composition combines two biologically active components – a natural naphthoquinone and a silver ion source in the form of 1–100 nm nanoparticles.

The mixture demonstrates high antibacterial efficacy with significantly reduced concentrations of both components compared to their individual use, confirming a synergistic effect.

The invention can be applied as an antimicrobial agent for external use, particularly for skin and wound infections caused by S. aureus.

Technology readiness level

TRL 4 - Technology validated in laboratory conditions.

Research Team

University of Gdańsk
Prof. Aleksandra Królicka
PhD Marta Krychowiak-Maśnicka

Applications

- Topical preparations for treating skin and wound infections caused by Staphylococcus aureus
- Sntiseptic and disinfectant agents in medical and veterinary use,
- Component of wound dressings and healing-support formulations.

Cooperation opportunities

- Licensing or joint development of application-ready formulations,
- Partnership with pharmaceutical and biomedical industries for product implementation,
- Collaboration in applied research on synergistic bioactive systems.

IP Protection

The invention is protected by the Polish Patent Office under the following number: **Pat.244425**

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biuro@ctt.ug.edu.pl
ul. Wita Stwosza 63,
80-308 Gdańsk
www.ctt.ug.edu.pl

Judyta Gawryś
+48 725 991 257