Flavonolignans reduce the virulence of antibiotic-resistant bacterial strains

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Researchers from the University of Chemistry and Technology in Prague found that in particular, optically pure flavonolignans have great potential as adjunct therapeutics in the control of Staphylococcus aureus infections. Flavonolignans have no or negligible toxicity, and have no antibiotic activity of their own, precluding the development of resistance.

"More attention should be paid to these compounds as they show promise for adjuvant therapies and reduce the virulence of antibiotic-resistant bacterial strains," says Jan Lipov, Ph.D.


Antibiotic resistance is currently a serious health problem. Since the discovery of new antibiotics no longer seems to be a sufficient tool in the fight against multidrug-resistant infections, adjuvant therapy is gaining importance as well as reducing bacterial virulence. Silymarin can be found in milk thistle and is a complex of flavonolignans known for its broad spectrum of biological activities, including its ability to modulate drug resistance in cancer.

Infections by Staphylococcus aureus cause severe diseases with high morbidity and mortality. One alternative to antibiotics is adjuvant therapy, where the mechanism of resistance is specifically inhibited, and the previously ineffective antibiotic regains its antimicrobial effects.

Flavonolignans have shown promising potential in this treatment approach. Authors of a recent study published in Biomedicine & Pharmacotherapy focused on the ability of flavonolignans to inhibit intercellular bacterial communication and inhibit bacterial cell adhesion to the surface.

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Provided by University of Chemistry and Technology Prague