Antistaphylococcal activity of a protein- and peptide-rich aqueous extract of *Trametes versicolor*

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Bioactive proteins and peptides derived from fruits, vegetables, meat or fish have great potential as functional foods or as substitutes for clinically used antimicrobials. In recent years, it has also been shown that the fungal kingdom could be a source of these compounds. This study investigated the bioactivity of an extract of the lignicolous fungus *Trametes versicolor* and its hydrolysate against reference strains and clinical isolates *Staphylococcus* spp. (no. of the patent application: P.445189).

The antimicrobial activity of the tested extract and hydrolysate was evaluated against staphylococcal reference (*S. aureus* ATCC 6538, methicillin-resistant *S. aureus* ATCC 1707, *S. epidermidis* ATCC 12228) and clinical isolates, by using the microdilution broth method according to EUCAST guidelines. The i*n vitro* activity of the test compounds (initial concentration of 50 mg/mL) was determined on the basis of the minimum inhibitory concentration (MIC) and the minimum bactericidal concentration (MBC). The MBC/MIC ratio was also used to assess the bacteriostatic (MBC/MIC $\geq$4) or bactericidal (MBC/MIC <4) effect.

We found bactericidal activity of the lignicolous fungus *Trametes versicolor* extract and its hydrolysate against staphylococcal strains with MIC ranging from 62.5 to 500 µg/mL. According to the invention, extracts obtained from *T. versicolor* show strong antimicrobial activity, in particular with high bactericidal species-dependent activity against staphylococci of extracts obtained from the lyophilisate, including methicillin-resistant *S. aureus* (MRSA).

The protein-rich *T. versicolor* extract and its hydrolysate can be used to produce preparations with antimicrobial activity, in particular antimicrobial and antioxidant activity, including bioactive ingredients in natural-based products.