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Occurrence and characteristics of methicillin-resistant Staphylococcus argenteus in food products in Germany

Inhalt

Staphylococcal species are well-known zoonotic opportunistic pathogens leading to clinical symptoms that range from skin and soft tissue infections to severe blood stream infections as well as human food poisoning. In 2015, *S. argenteus* was defined as a separate species within the *S. aureus* complex but with a similar pathogenicity in humans, proven by occasional infectious disease and foodborne poisoning outbreaks especially in Asia and Australia.
To identify methicillin-resistant *S. argenteus* in the German food chain, we analysed ~6000 presumptive methicillin-resistant *S. aureus* (MRSA) isolates that have been provided to the German NRL-Staph between 2014 and 2024, mostly in frame of the national zoonoses monitoring. In total, we identified and further characterised 12 *mecA*-positive *S. argenteus* strains by whole genome sequencing and phenotypic antimicrobial resistance (AMR) testing. Because all identified *S. argenteus* isolates originated from Asian seafood, a small study on fish and seafood imports to Germany followed in 2024/2025 which resulted in further ten isolates. All isolates showed a highly clonal structure and less AMR than MRSA from seafood, but harbored relevant virulence genes like staphylococcal enterotoxin and immune evasion cluster genes.
In conclusion, AMR and potentially virulent *S. argenteus* strains are regularly present in fish and seafood from Asian regions, but have not yet been observed in German food products. The strains might represent a threat to human health.

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MRSA, virulence, resistance, food safety

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Professional Status of the Speaker

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No, I am not a Junior Scientist.

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