

The project involves an assessment of the role of ready-to-eat food (purchased in retail outlets as well as in restaurants and bars) in the transmission of virulent, antibiotic-resistant, toxin-producing staphylococci. It will focus on coagulase-negative strains which for many years were regarded as non-pathogenic microorganisms and are now one of the factors causing infections in people with impaired resistance. Although the number of reports on the pathogenic potential of coagulase-negative staphylococci isolated from people and from food of animal origin is increasing, there are no data to characterise strains from food of plant origin, fish, seafood or food served in bars and restaurants, especially in dishes where cross-contamination from personnel preparing food (sandwiches, spring rolls, sushi – whose popularity in Poland is growing) is highly likely. Such food can be a perfect vector for transmission of genes of resistance and genes of virulence to human microflora and to other microorganisms.

Literature data suggest the high potential of coagulase-negative staphylococci for transmission of their genetic material, including to *S. aureus*, which can affect their pathogenicity and evolution. The project will include examination of the toxin-producing potential of coagulase-negative staphylococci isolated from food. European Commission Regulation (WE) NR 2073/2005 does not provide for the obligation to determine the coagulase-negative staphylococci in food and the presence of enterotoxins is determined only after coagulase-negative staphylococci are found at more than 10^5 cfu/g. Studies in this direction are justified by reports on the possibility of transmission by coagulase-negative staphylococci of genes encoding enterotoxins on mobile genetic elements. It must be noted that in case of poisoning, it is difficult to say whether the enterotoxin was produced by coagulase-negative or coagulase-positive strains (especially in food after thermal treatment), because tests are based on detection of the enterotoxin itself, without determination of live staphylococci cells. Therefore, participation of coagulase-negative staphylococci in causing food poisonings seems to be likely.