

Some *Staphylococcus aureus* strains can produce staphylococcal enterotoxins when growing in food. These factors ingested with food can cause in humans staphylococcal food poisoning which manifests with vomiting and sometimes also with diarrhea. Enterotoxins produced by *S. aureus* are resistant to temperatures applied in food processing and able to endure the digestion by enzymes in human stomach and gut. These properties make that they are difficult to inactivate. According to EU regulations some food assortments are examined for enterotoxins only if *S. aureus* is detected in the product. According to recent research also other staphylococci called coagulase-negative staphylococci might produce enterotoxins. This group of bacteria is not routinely screened in food in the EU, thus enterotoxins produced by coagulase-negative staphylococci will remain undetectable and products containing enterotoxins will pass quality controls as safe.

Our recent research revealed that a member of coagulase-negative staphylococci, that is, *S. epidermidis* can produce enterotoxins similar to *S. aureus* enterotoxins C and L, and secrete them to food at concentrations even higher than *S. aureus* can do. However, enterotoxins C and L produced by *S. epidermidis* have different amino-acid composition than those of *S. aureus* enterotoxins. Toxins of different amino-acid sequence can in turn have altered biological properties and stability.

To assess whether enterotoxins produced by *S. epidermidis* have similar properties as enterotoxins produced by *S. aureus* we will analyse these factors in terms of the stability and ability to induce vomiting in small animal model. To do this we will produce large quantities of enterotoxins C and L from *S. epidermidis* and *S. aureus* using laboratory strains of *Escherichia coli*. Then, we will analyse the thermal and chemical stability and resistance to proteolysis by enzymes encountered in human digestive tract of enterotoxins C and L from *S. epidermidis* and compare their properties to respective *S. aureus* toxins.

Ability to induce vomiting by enterotoxins C and L from *S. epidermidis* will be assessed in a model of small animal, that is Asian House shrew (*Suncus murinus*). This property will also be compared with respective enterotoxins produced by *S. aureus*.

The current status of knowledge is insufficient to draw conclusions on the hazards related to enterotoxins produced by coagulase-negative staphylococci. Addressing the aforementioned questions should allow to define the actual impact of enterotoxigenic coagulase-negative staphylococci on food safety and thus on public health.