APPLYING TRANSCRIPTOME PROFILING TO EXPLORE THE QS-SYSTEMS IN THE FISH PATHOGEN *ALIIVIBRIO SALMONICIDA*

Nils Peder Willassen

Department of Chemistry, Faculty of Science and Technology, University of Tromsø, Norway, Tromsø
e-mail: nils-peder.willassen@uit.no

Bacteria coordinate activities as a population, which likely provides a selective advantage in the natural environment by allowing them to alter their morphology and physiology quickly to adapt to environmental changes. In order to adapt, bacteria need a wide variety of mechanisms for sensing and responding to these changes. Recent work has clarified many aspects of how bacteria communicate and synchronize cell behaviour through an elegant process known as quorum sensing (QS). QS mediated by signal molecules, referred to as Autoinducers (AI), enable bacteria to control and synchronize behaviour such as motility, biofilm formation, virulence factor production and bioluminescence under different environmental conditions. Although some details of QS are known for a few model organisms, the understanding of the broader role of QS in gene regulation and the diversity of adaptive responses and how these responses are linked to virulence remains fragmented.

To address the lack of knowledge of the diversity of adaptive stress responses, such as intra- and inter-species communication, population-level cooperation, and the principles underlying signal transduction and information processing during infection *Aliivibrio salmonicida*, the causative agens of cold-water vibriosis has been used as a model system. The observed phenotypic variability due to gene knockouts in the sensing and responding systems (QS-systems), using transcriptome profiling (microarray), will be presented.

ACHIEVEMENTS AND PROSPECTS IN LONG-DISTANCE TRANSPORTATION OF LIVE RED KING CRAB *PARALITHODES CAMTSCHATICUS*

I. Zagorsky, N. Kovatcheva, R. Vasilyev, R. Lebedev

Russian Federal Research Institute of Fisheries and Oceanography, Russia, Moscow
e-mail: zagorsky_eg@mail.ru

Red King Crab (*Paralithodes camtschaticus*) is one of the most valuable and expensive seafood delicacies. It comes to the market in different forms: cooked-frozen legs, raw-frozen legs, boiled meat, etc... The most valuable product, providing the best preservation of food quality, is live red king crab. But there are some problems associated with operational live crab transportation from place of catch to the final consumer. Crabs habitats are far away from major economic centers and transportation hubs. That's the Sea of Okhotsk in Russia, where the catch of crab in the declining population has virtually closed, the coast of Alaska in the United States, the Barents Sea in Russia and northern Norway. Experiments show that crabs can be kept for a long time out of water and are transportable by air. But when transportation takes more then 24 hours, there is significant mortality. Works on developing new and improving existing methods of life crabs transportation are actual and are aimed at increase in duration of transport and reducing mortality.

Experiments were conducted on the land based water tank complex Norway King Crab (Byugoynes, Norway) and storage complex with closed recirculation water system (CRWS) – «La Maree» LTD. (Moscow, Russia). In addition, were analyzed the outcome of life crabs sending from the northern part of Norway to Belgium, France, Italy, Korea, Japan and China. Crabs for experiments were caught in the Varanger Fjord (Norway).

Polystyrene boxes with wet or dry material inside were used for crab's transportation. Low temperature maintained using frozen gel-ice.