

SPECIAL REPORT

Enhancing Food Safety and Competitiveness of Seafood Products: HPP Protocols for Seafood and Regional Guidelines on GMP & GHP for Sushi and Sashimi

by SEAFDEC/MFRD

Fisheries and aquaculture are key industries in the Southeast Asian region which serve as main source of food and livelihood for many people. The ASEAN Member States (AMSs) account for a quarter of global fish production, making the region a significant producer of fish and fishery products. Increasingly, fish and fishery products are exported globally, as demand for fish has risen all around the world. However, seafood is a highly perishable product, with several chemical and biological changes occurring immediately after capture and/or harvest. Due to irreversible processes such as microbiological metabolism, oxidative reactions, and enzymatic activity, the quality of seafood deteriorates quickly resulting in loss of economic and nutritional value. In order to safeguard the freshness and safety, extend shelf life, and maintain quality and economic value of seafood products from catch or harvest to consumer, it is essential that good handling practices are in place as well as new preservation technologies are adopted.

In recent years, consumers highly prized convenience which led to the increasing demand for ready-to-cook (RTC) foods and ready-to-eat (RTE) meals. Some examples of such products include sushi, sashimi, shucked shellfish, and ready-to-cook seafood in sauce. One of the technologies that can be used in the production of RTC and RTE foods is high pressure processing (HPP), a cold pasteurization technique whereby sealed products are subjected to high pressures transmitted by water. Due to the high pressure, microorganisms that may cause food spoilage such as bacteria, viruses, yeasts, molds, and parasites are inactivated, thereby extending the shelf life of products. The absence of heat also means that the nutrition and texture of the food products are preserved, allowing consumers to enjoy a better sensorial experience when consuming pasteurized food using HPP. In the realm of seafood, HPP may also have additional uses in shucking and deshelling of mollusks and crustaceans, increasing the ease and convenience of consumers enjoying these foods.

Other RTE foods such as sushi and sashimi are also gaining popularity worldwide. These delicacies, which consist of fresh fish that is thinly sliced and consumed raw with soy

sauce, pose a higher microbiological risk compared to cooked foods. Therefore, it is critical that there are appropriate good manufacturing and handling practices (GMP & GHP) in place for the production of sushi and sashimi in order to mitigate such risks, while maintaining the quality, freshness, and nutritional content of the products.

Hence, the development of HPP Protocols for Seafood as well as Regional Guidelines on Good Manufacturing and Handling Practices (GMP & GHP) for Sushi and Sashimi are the two tracks of the project “Enhancing Food Safety and Competitiveness of Seafood Products” supported by the Japanese Trust Fund VI Phase II. The development of these regional protocols and guidelines would not only increase the confidence of consumers in the safety of fish and fisheries products from the AMSs, but also enable producers to reach a wider market by equipping them with knowledge of utilizing HPP to produce RTC and RTE foods.

The two tracks of the Project would be carried out from 2020 to 2024. However, due to travel restrictions brought about by the COVID-19 pandemic, the inception meetings for



Participants during the Inception Meeting on Guidelines on HPP for Seafood on 6 October 2020 (left) and Inception Meeting for GMP/GHP Sushi & Sashimi on 8 October 2020 organized by MFRD in Singapore through Google Meet (right)

both tracks were conducted virtually in October 2020. During the inception meetings, the representatives from the AMSs shared the current state of adoption of HPP in their respective countries and information on existing local regulations pertaining to sushi and sashimi production. The regional expert on food science from Nanyang Polytechnic of Singapore, *Dr. Gan Heng Hui*, presented the proposed processing flow chart to be included in the GMP & GHP. Furthermore, the scope and range for both tracks of the Project were discussed and agreed by the participating AMSs (*i.e.*, Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam).

As ways forward during 2021-2024, R&D and product development would be undertaken in collaboration with local institutes and industry partners in Singapore for HPP of fish and fishery products. A Regional Training Course on HPP technology would be organized in Singapore for representatives from the AMSs, and the Handbook on HPP of fish and fishery products would be finalized. To round off

the project, a visit to a commercial High Pressure Processing Plant for Seafood is planned in one of the AMSs.

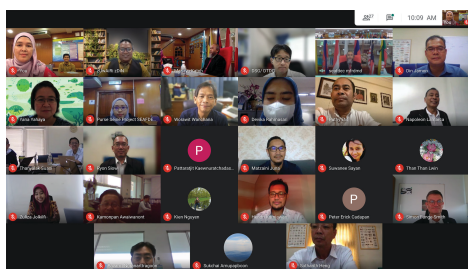
Similarly, training materials would be developed for GMP & GHP for sushi and sashimi, and a Regional Training Course will be conducted in Singapore for representatives from the AMSs. A one-year trial on implementing GMP & GHP would be conducted in the respective AMSs to identify the gaps in manufacturing industries. Subsequently, the Regional Guidelines for GMP & GHP for sushi and sashimi would be finalized.

It is anticipated that the Project would enhance the safety and quality of seafood products in the region through the adoption of the Handbook on HPP of fish and fishery products and Regional Guidelines for GMP & GHP. MFRD looks forward to the smooth implementation of the planned activities and continued collaboration with the AMSs. When the COVID-19 situation is improved, it is hoped that in-person meetings could be conducted at the end of the Project.



REGIONAL PROGRAMS

Regional Technical Consultation on RPOA-Capacity



Participants of the Regional Technical Consultation on RPOA-Capacity

SEAFDEC/MFRDMD convened the Regional Technical Consultation on Regional Plan of Action for the Management of Fishing Capacity (RPOA-Capacity) on 8 December 2020 via teleconference. The Meeting was attended by representatives from Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand, and Viet Nam; resource person from FAO Regional Office for Asia and the Pacific (FAO/RAP); and officials from SEAFDEC Secretariat, TD, and MFRDMD. The objectives of the Consultation were to provide updates

regarding the implementation of the RPOA-Capacity in respective ASEAN Member States (AMSs) and establish the way forward for the implementation of national and regional plans of action in the respective AMSs.

During the Consultation, the resource person from FAO/RAP, *Dr. Simon Funge-Smith*, provided the historical background of the FAO International Plan of Action for the Management of Fishing Capacity (IPOA-Capacity). He commended Malaysia for the successful development of its NPOA-Capacity, and also encouraged other AMSs to carry out similar effort. During the Consultation a concern was expressed that due to the increasing attention on illegal, unreported and unregulated (IUU) fishing, there has been less priority on the fishing capacity even though IUU fishing is linked to fishing capacity as part of concrete bilateral actions. The mechanism to regulate IUU fishing, *i.e.*, the EU yellow and red cards, demonstrated that

fishing fleets regulation could be also an indirect mechanism for fishing capacity management.

Moreover, the representatives from the AMSs provided feedback on the implementation of RPOA-Capacity in their respective countries. Presently, Malaysia is developing NPOA-Capacity Plan 3, while Cambodia has developed the NPOA-Capacity in Cambodian language to be implemented from 2020 to 2024. At the same time, Thailand utilized the Fisheries Management Plan to manage fishing capacity. On the other hand, Viet Nam is regulating their fishing capacity through the Fisheries Law 2017. The issues and challenges in developing and implementing the NPOA-Capacity have been also discussed during the Meeting. Most of the AMSs requested technical assistance from SEAFDEC in developing the NPOA-Capacity, fisheries management, training in fishing capacity and stock assessment, and resource and acoustic surveys. 