ASEAN FOOD TESTING LABORATORY COMITTEE

AFTLC BULLETIN

5TH ISSUE

AFTLC BULLETIN

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Achievements and Milestones of AFTLC

SINCE ITS INCEPTION

AFTLC HAS TURNED

12 YEARS OLD

WITH A PLETHORA OF ACHIEVEMENT TO CELEBRATE

The ASEAN Food Testing Laboratory Committee, commonly known as AFTLC among the ASEAN community, was founded in 2012 under the Prepared Foodstuff Product Working Group (PFPWG) as a technical body tasked for setting up new ASEAN Food Reference Laboratory (AFRLs) and overseeing the existing AFRLs to meet the strategic goal of strengthening the national food safety laboratory network among ASEAN Member States (AMS). Looking back the past 12 years, so much can be memorised and celebrated by our members, our stakeholders and collaborating partners!

In the first few years after the inception of AFTLC, our members focused their collective efforts on the development of AFTLC operating framework, along with a number of associated working procedures to support the mission AFTLC set out to undertake. In accordance with the established framework and working procedures, AFTLC appointed expert panels to conduct on-site assessment of applicant laboratories. Thereafter, 3 new AFRLs in Environment Contaminants, Food Additives and Food Contact Materials, respectively, were established at the 5th AFTLC in 2014.

Achievements and Milestones of AFTLC

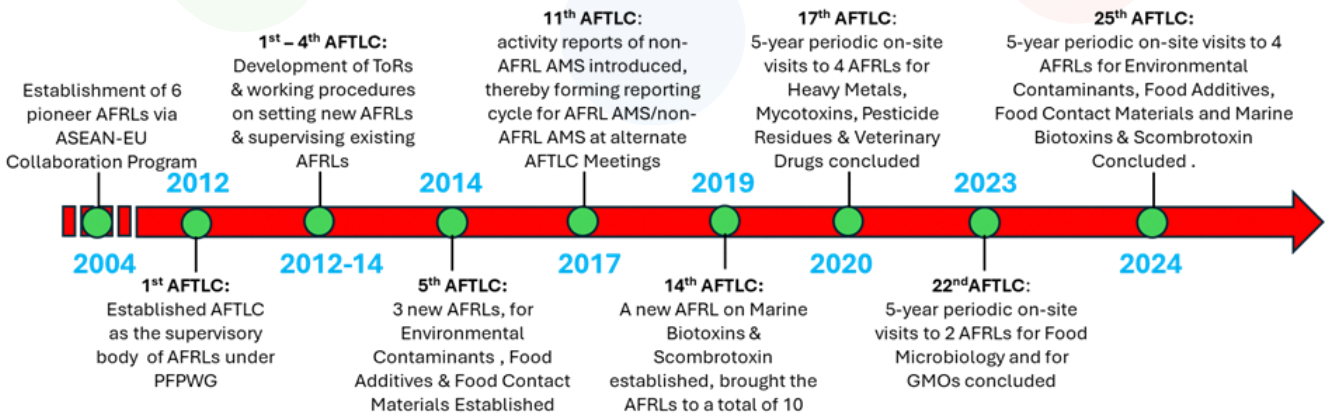
SINCE ITS INCEPTION

Some of the working procedures of AFTLC were further refined in the next few years based on the experience gained from practice. One example was the introduction of activity reports at the 11th AFTLC for those AMS where there has been no any AFRL established, as a conscientious effort to understand the laboratory capacity building needs in those AMS. This arrangement has led to the formation of the current reporting cycle for AFRLs and non-AFRL AMS at the alternate AFTLC meeting. This reflects AFTLC's determination to ensure that the capacity building initiatives of AFRLs are in good alignment with the actual requirements in respective AMS. Furthermore, according to the refined working procedures, a new AFRL for Marine Biotoxins & Scombrotoxin was established at the 14th AFTL in 2019. This brings the total number of AFRLs to 10, i.e., 4 AFRLs established by AFTLC since its birth, and 6 'pioneered' AFRLs established in 2004 under the ASEAN-European Union Cooperation Program.

AFTLC has never lost its sight on its another core mission, i.e., to monitor the performance of all the existing AFRLs through both the yearly activity reports of AFRLs as well as the 5-year periodic on-site assessment. For the latter, well-qualified Panel of Experts (PoEs) are chosen from the pool of experts nominated by AMS in accordance with the selection criteria laid down as part of AFTLC's working procedures. Subsequently, appointed PoEs work seamlessly with the pertinent AFRLs to carry out the 5-year periodic on-site evaluation based on the Term of Reference established for AFRLs. The on-site assessment reports of PoEs are subsequently submitted to AFTLC for review and decision making whether the respective AFRL can be renewed as an AFRL for another 5-year term. At the 17th AFTLC, 4 'pioneer' AFRLs completed their first 5-year periodic review with positive feedback, and by 22nd AFTLC, 2 remaining 'pioneer' AFRLs whose initial scheduled on-site assessment was disrupted by Covid-19 Pandemic was accomplished as well, marking the successful completion of first 5-year periodic review of all the 6 'pioneer' AFRLs. Meanwhile, the 5-year periodic on-site assessment of the 4 AFRLs established since the inception of AFTLC has been slated to be conducted prior to the 25th AFTLC.

With the joint efforts of our dedicated AFTLC members, our network of AFRLs as well as the support from PFPWG and higher authorities in the ASEAN community and our international dialogue partners, we are confident that together we can go a long way to boost food safety analytical capabilities and promote agri-food trade across ASEAN and beyond.

AFTLC Key Milestones (2012-2024)



21ST AFTLC MEETING (VIRTUAL)

21ST ASEAN FOOD TESTING LABORATORY COMMITTEE MEETING

The 21st Meeting of the ASEAN Food Testing Laboratory Committee (AFTLC) was held on 12-13 September 2022 through video conference. The Meeting was chaired by Mr. Ir. Teguh Samudro MP., Director for System Standardization and Compliance, Fish Quarantine Inspection Agency, Ministry of Marine Affairs and Fisheries Indonesia and vice-chaired by Ms. Laila Rabaah Ahmad Suhaimi, Deputy Director of Laboratory Branch, Food Safety and Quality Division, Ministry of Health Malaysia.

The Meeting was attended by delegates from Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Viet Nam and the ASEAN Secretariat. The representatives from the Physikalisch-Technische Bundesanstalt (PTB) Germany and International Life Sciences Institute Southeast Asia Region (ILSI-SEAR) were in attendance for the open session.

THE KEY DISCUSSIONS

- Rotation of chairmanship and vice chairmanship to ensure every Member State to be given equal opportunity to contribute to AFTLC meeting. When one Member State decides to relinquish the opportunity as the chair or vice-chair, the position will be offered to the following Member State on alphabetical order.
- The summary of findings for the on-site assessment by the appointed Panel of Expert (PoE) for the AFRL on Genetically Modified Organism (GMO). The meeting was updated on the schedule of on-site assessment for the AFRL on Food Microbiology in Oct 2022. The full reports of the two on-site assessments would be expected for review and endorsement at the next AFTLC meeting.
- The activities and progress by the AFRL on mycotoxins, pesticide residues, genetically modified organisms, veterinary drug residues, heavy metals and trace elements, food microbiology, food additives, food contact materials, environmental contaminants, and marine biotoxins and scombrotoxin, respectively.
- The proposals of Indonesia for establishment of the new areas of AFRL: (i) species identification and (ii) food processing contaminants were delibrated. AMS were encouraged to provide comments to the proposals and participate in the surveys on requirements for the new areas of AFRL.
- The progress of ASEAN-PTB Cooperation to support AFTLC based on the joint work plan and the progress of their 2-Phased program by ILSI in supporting AFTLC in the area of laboratory capacity building.
- The proposal on establishment of a guideline for NFRLs. A concept note was requested on the background, objective, time schedule, way to implement, etc. for discussion and consideration at the next meeting.

22ND AFTLC MEETING (VIRTUAL)

22ND ASEAN FOOD TESTING LABORATORY COMMITTEE MEETING

The 22nd Meeting of the ASEAN Food Testing Laboratory Committee (AFTLC) was held on 22-23 February 2023 through video conference. The Meeting was chaired by Mrs. Sutanti Siti Namtini, Senior Food and Drug Regulatory Officer, Indonesian Food and Drug Authority (Indonesian FDA), Indonesia and vice-chaired by Ms. Laila Rabaah Ahmad Suhaimi, Deputy Director of Laboratory Branch, Food Safety and Quality Division, Ministry of Health Malaysia.

The Meeting was attended by delegates from Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Viet Nam and the ASEAN Secretariat. The representatives from the Physikalisch-Technische Bundesanstalt (PTB) Germany and International Life Sciences Institute Southeast Asia Region (ILSI-SEAR) were in attendance for the open session.

THE KEY DISCUSSIONS

- The periodical 5-year on site assessment of some AFRLs was disrupted by Covid-19 pandemic. There is a need to re-align the on-site assessment of AFRLs by the Panel of expert (PoE). Thailand was tasked to review and propose a synchronized schedule for discussion at the next AFTLC meeting.
- The meeting reviewed the on-site assessment report for Genetically Modified Organisms (GMO) (hosted by Department of Chemistry Malaysia (KIMIA) and agreed to submit it to PFPWG for the final endorsement.
- The meeting requested the submission of the full assessment report of the on-site visit for AFRL for Food Microbiology (hosted by QUATEST Viet Nam) before 23rd AFTLC meeting.
- The meeting supported the proposal to conduct training and briefing for Panel of Expert (PoE) for on-site assessment to ensure consistency of assessment approaches and reporting. One-time training for PoE will be conducted by AFTLC and the pre-visit briefing will be done by each AMS for the selected PoE.
- On the new area of AFRL for Radionuclides, the meeting agreed to extend the period of submission of application proposal, and request ASEAN Secretariat to call for additional applications, encouraging particularly the application proposals from non-AFRL AMS.
- The meeting further reviewed the survey results submitted by Indonesia on the proposed new AFRLs on food processing contaminants and species identification. Due to divergent views by AMS, the meeting agreed to task Indonesia to provide more information on the impact of proposed AFRFL on trade, legislation, and regulation to address queries and concerns expressed by several AMS to enable further discussion at the next AFTLC meeting.

23RD AFTLC MEETING (VIRTUAL)

23RD ASEAN FOOD TESTING LABORATORY COMMITTEE MEETING

The 23rd Meeting of the ASEAN Food Testing Laboratory Committee (AFTLC) was held on 19-20 October 2023 through video conference. The Meeting was chaired by Mrs. Sutanti Siti Namtini, Senior Food and Drug Regulatory Officer, Indonesian Food and Drug Authority (Indonesian FDA), Indonesia and vice-chaired by Ms. Laila Rabaah Ahmad Suhaimi, Deputy Director of Laboratory Branch, Food Safety and Quality Division, Ministry of Health Malaysia.

The Meeting was attended by delegates from Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Viet Nam and the ASEAN Secretariat. The representatives from the Physikalisch-Technische Bundesanstalt (PTB) Germany and International Life Sciences Institute Southeast Asia Region (ILSI-SEAR) were in attendance for the open session.

THE KEY DISCUSSIONS

- The Meeting recommended to re-align the next onsite periodic assessment for the 6 pioneer AFRLs, i.e., Food Microbiology (VN), GMO (MY), Heavy Metals (TH), Mycotoxins (SG), Pesticide Residues (SG), and Veterinary Drug Residues (TH) to 2026, as well as the coming 5-year periodic assessment of the 4 new AFRLs, namely Environmental Contaminants (SG), Food Additives (IN), Food Contact Materials (TH), Marine Biotoxins and Scombrotoxin (SG) in 2024.
- The Meeting also agreed on the approach for selecting PoE for conducting on-site visits of the 4 AFRLs. For every AFRL subject to the 5-year periodic on-site visit, a group of 3 AMS (2 from AMS with AFRLs and 1 from non-AFRL AMS can propose 5 experts from the pool of experts nominated by AMS and the AFTLC will finalize 4 panel of experts (PoEs) to conduct the on-site visits in 2024 at the said 4 AFRLs. An online training session in Feb 2024 for PoE on the procedures and deliverables for conducting the on-site visits to AFRLs was agreed by the meeting.
- The Meeting reviewed the full report of the on-site visit to AFRL for Food Microbiology hosted by QUATEST Viet Nam, and agreed to extend its term as AFRL for another 5 years.
- The meeting discussed the updates on the AFTLC Manual, TOR for Panel of experts (PoE), and list of the pool of experts, encouraging AMS to conduct necessary review on the list of experts nominated by them earlier.
- The Meeting discussed further on Indonesia's survey results for the proposed new AFRLs on Food Processing Contaminants and Species Identification. Considering the divided views by AMS, the Meeting requested further collation of the required information to ensure a clear definition of the scope of the new AFRLs.
- For the establishment of a new AFRL for Radionuclides, only one proposal was received by the deadline on 1 August 2023. The meeting agreed on the extension of another 6 months until 20 May 2024 to encourage other AMS especially the non-AFRLs to consider submission their proposals.
- Meeting discussed the capability development for testing of food-borne parasites with food safety and public health concerns amid diverse dietary choices and climate change. The Meeting agreed to seek technical inputs from ASEAN dialogue partner such as ILSI in this new area, and scheduled further discussion on the need for food-borne parasites to be as potential area for a new AFRL.
- PTB presented the training activities support by PTB to AFTLC, the Overview of the AFTLC-PTB ASEAN IV project, the current progress (03/2023 – 10/2023) and future plan.

National Centre for Food Science, Singapore Food Agency, Ministry of Sustainability and the Environment, Singapore

The Singapore Food Agency (SFA) was formed in 2019, as statutory board under the Ministry of Sustainability and the Environment (MSE) to oversee food safety and food security in Singapore. SFA's mission is to ensure a safe and resilient supply of food from farm-to-fork. This entails overseeing food safety standards, regulating food-related issues and promoting public health through effective food management practices.

"THE AFRLS PLAY A MAJOR ROLE IN STRENGTHENING THE TECHNICAL COMPETENCY OF LABORATORIES IN THE ASEAN REGION, BY PROVIDING FOR SCIENTIFIC LEADERSHIP AND CAPACITY BUILDING PROGRAMMES. "

The National Centre for Food Science (NCFS) was established under SFA to provide leadership in comprehensive food diagnostic testing capabilities as well as research and development in food safety. The center oversees the application of science and technology to enable a science-based and data-driven approach in ensuring food safety, in partnership with research institutions and other relevant stakeholders to address food safety and security concerns.

NCFS is the OIE Collaborating Centre for Food Safety and the WHO Collaborating Centre for Food Contamination Monitoring. Currently four ASEAN Food Reference Laboratories (AFRLs) for Environmental Contaminants, Marine Biotoxins and Scombrotoxin, Mycotoxins and Pesticide Residues are established and operated under NCFS.

OIE COLLABORATING CENTRE FOR FOOD SAFETY

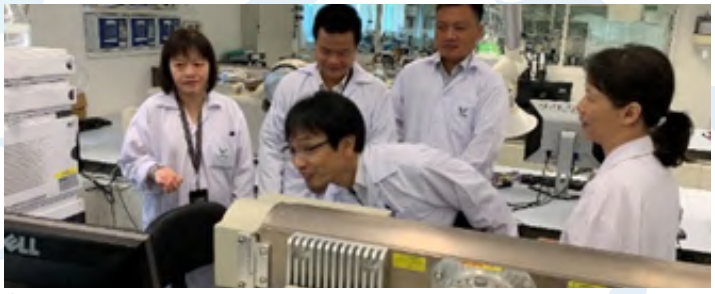
WHO COLLABORATING CENTRE FOR FOOD CONTAMINATION MONITORING

ASEAN FOOD REFERENCE LABORATORIES (AFRLS) FOR ENVIRONMENTAL CONTAMINANTS, MARINE BIOTOXINS AND SCOMBROTOXIN, MYCOTOXINS AND PESTICIDE RESIDUES

AFRL for Marine Biotoxins & Scombrotoxin

Introduction of the AFRL for Marine Biotoxins & Scombrotoxin

AFRL FOR MARINE BIOTOXINS AND SCOMBROTOXIN WAS ESTABLISHED AT THE 14TH AFTLC FOLLOWING ON-SITE ASSESSMENT CONDUCTED BY THE PANEL OF EXPERTS.



Since its endorsement in 2019, AFRL for Marine Biotoxins & Scombrotoxin continues to expand its testing capability and technical expertise to cover 11 methods of analysis, with accreditation by the Singapore Accreditation Council's Singapore Laboratory Accreditation Scheme (SAC-SINGLAS) under the ISO/IEC 17025:2017 standard. The AFRL also organized proficiency testing programme and technical training workshops for the ASEAN member states as well as for local food tesing laboratories under SFA's Laboratory Recognition Programme (LRP).

Organization of the 1st ASEAN Proficiency Testing Programme – Histamine in Tuna Meat (Code: NCFS-PT2020-01)

As the AFRL for Marine Biotoxins & Scombrotoxin, one of its roles is to provide Proficiency Test programs for the ASEAN member states. The aim of the PT program is to provide an independent assessment of the competence of participating laboratories for the analysis of Marine Biotoxins & Scrombotoxin. Through PT participation, laboratories in the ASEAN member states will be able to validate their test methods and identify areas of improvement to strengthen their technical competencies.

A SURVEY WAS CONDUCTED IN JUNE 2021 TO ASCERTAIN THE PT SCHEME THAT LABORATORIES IN THE ASEAN MEMBER STATES WOULD BE INTERESTED TO PARTICIPATE IN. THE 4 PT SCHEMES WERE:

1. DOMOIC ACID (ASP) IN MUSSEL
2. HISTAMINE IN TUNA MEAT
3. HISTAMINE IN FISH SAUCE
4. BREVETOXINS (BTX) IN MUSSELS

A total of 11 laboratories responded to the survey and Histamine in Tuna Meat attained the highest vote. Hence, preparation of the PT material commenced in 2022, and the PT material was dispatched to 14 participating laboratories in June 2023.

PT Performance

A total of 14 participating laboratories from 7 ASEAN member states (AMSs) took part in this PT scheme. The participants were from Brunei, Indonesia, Malaysia, Myanmar, Philippines, Singapoand Vietnam. The participants' performance was evaluated, and the final report was issued on 30 November 2023.

Table 1: Participants for Histamine in Tuna Meat PT (NCFS-PT2020-01)

ASEAN Member States	Number of laboratories that registered for the PT	Number of government laboratories	Number of laboratories that submitted results
Brunei	1	1	1
Indonesia	3	2	3
Malaysia	4	4	4
Myanmar	1	1	1
Philippines	1	1	1
Singapore	2	0	2
Vietnam	2	2	2
Total	14	11	14

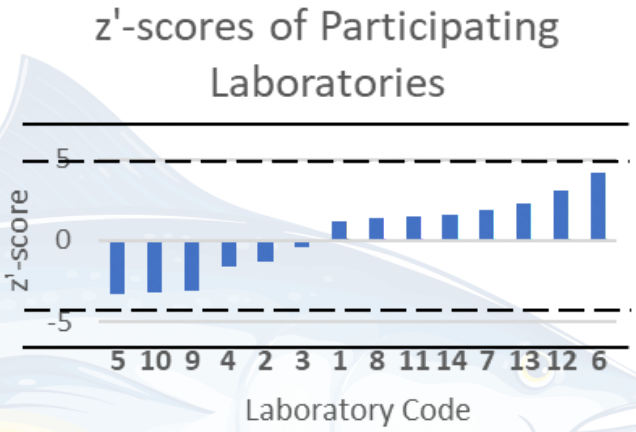


Table 2: PT performance

Z'-score	Histamine
$\|z\| \leq 2$	8 (57.1%)
$2 < \|z\| < 3$	1 (7.1%)
$\|z\| \geq 3$	5 (35.7%)

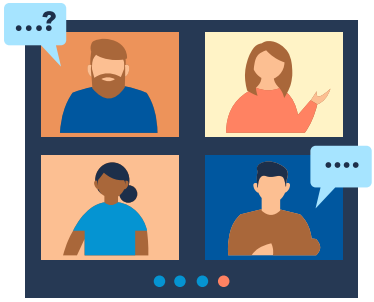
Post-PT Workshop for Histamine in Tuna Meat

On 10 September 2024, the AFRL organized a post-PT workshop to provide participating laboratories with deeper insights into the conduct of the PT. The virtual workshop drew participation from about 30 attendees representing 10 food testing laboratories from 7 AMSs.

During the workshop, capability gaps were identified and recommendations for improvement of laboratory practices were discussed.

Dr Shen Ping, Branch Head of NCFS, welcoming the workshop attendees from various countries in the ASEAN region

Scientists from the PT organising team, presenting on an overview of the PT for Histamine in Tuna Meat and sharing their experience and observations during the conduct of the PT

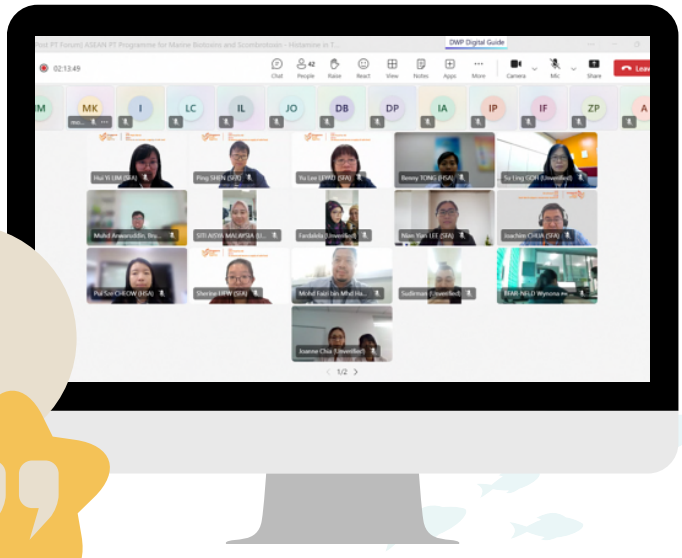


Dr Benny Tong, a Senior Analytical Scientist from Singapore's Chemical Metrology Laboratory, was also invited to share on the value assignment process.

In particular, Dr Tong provided valuable insights on estimating the uncertainty components in the value assignment for this PT.

The AFRL extends its sincere thanks to all participants of the PT and the workshop for their active participation and valuable feedback.

Your positive insights and contributions are greatly appreciated and will help us to continue improve future initiatives.



Technical Training Workshops

The laboratory in its capacity of AFRL for Marine Biotoxins & Scombrotoxin has in place a multi-disciplinary team of scientists and a well-equipped laboratory for Marine Biotoxins and Scombrotoxin (Histamine) testing. The instruments equipped deployed include ELISA Reader, HPLC-FLD, LC-MS/MS and HRMS for the detection and confirmation of a whole range of marine biotoxins and histamine.

OVER THE YEARS, THE LABORATORY ORGANIZED MULTIPLE TECHNICAL TRAINING WORKSHOPS ON MARINE BIOTOXIN ANALYSIS. THE MAIN OBJECTIVES OF THE TRAINING IS TO IMPROVE THE FOOD SAFETY TESTING CAPABILITY FOR THE ASEAN MEMBER STATES.

Workshops/trainings

2024

TECHNICAL TRAINING ON MARINE BIOTOXINS (AMNESIC SHELLFISH POSISONING (ASP) ,PARALYTIC SHELLFISH POISONING (PSP), DIARRHETIC SHELLFISH POISONING (DSP), NEUROTOXIC SHELLFISH POISONING (BTX), TETRODOTOXIN (TTX)) & HISTAMINE

2023

TECHNICAL TRAINING ON BACTERIAL TOXINS & PARALYTIC SHELLFISH POISONING (PSP) USING RAPID TEST KITS

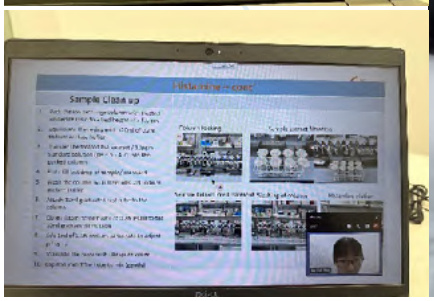
ALL ASEAN MEMBER STATES INCLUDING SINGAPORE

Details of participating laboratories

LABORATORY RECOGNITION PROGRAM (LRP) LABORATORIES

Technical Training Workshops

1 VIRTUAL / ON-SITE TRAINING FOR LRP LABS ON MARINE BIOTOXINS (ASP, DSP, PSP, TTX, BTX, HISTAMINE IN 2024

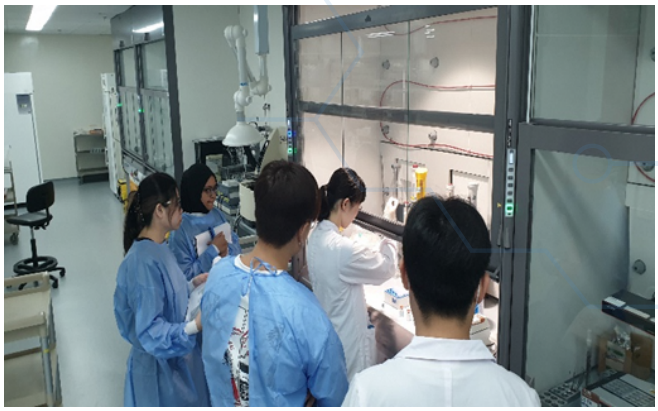


Virtual training on Marine Biotoxins (ASP, DSP, ASP, TTX, BTX) and Histamine followed by an on-site training conducted in Jan 24.

The virtual session covered the principles of analysis, extraction method and the instrumentation. The on-site training focus on the hands-on demonstration and the instrumental method set up as well as to answer queries from the participants on doubts during the virtual session.

2 ON-SITE TRAINING FOR THE LRP LABS ON PSP ELISA TEST KITS IN 2023

Training was conducted on-site for the LRP laboratories in Oct 2023 and Nov 2023. A total of 15 participants from the various LRP laboratories attended the sessions. The training consists of lecture on the principles of the test kit techniques deployed for PSP test, with hands-on training and instrument method set-up using ELISA reader.



The Capacity Building Activities Organized by AFRL for Pesticide Residues

The Pesticide Residues Laboratory of the National Centre for Food Science (NCFS) under the Singapore Food Agency (SFA) has been the appointed ASEAN Food Reference Laboratory (AFRL) for Pesticide Residues since 2004. Since then, the AFRL has regularly organized capacity building activities in collaboration with ASEAN dialogue partners such as USDA, US IR4, PTB, and etc.

Good Laboratory Workshop Among Asian Countries on Pesticide Residues Analysis

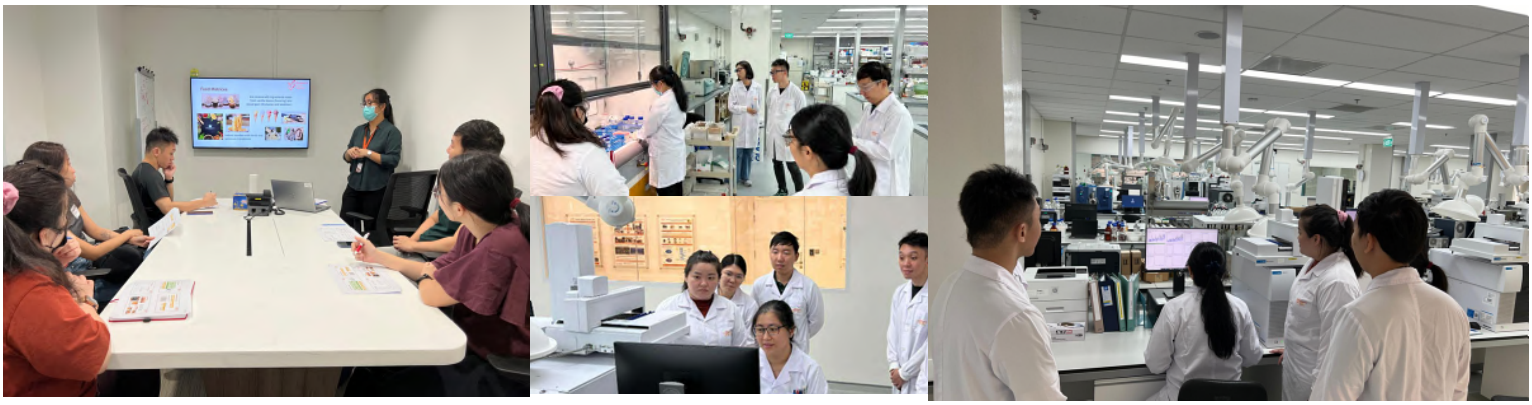
AFRL for Pesticide Residues organized Good Laboratory Practices Training from 2-5 May 2023 in collaboration with US IR4. The event was part of the project known as 'Asia Pesticide Residues Mitigation through the Promotion of Biopesticides and Enhancement of Trade Opportunities', which was funded under the WTO Standards of Trade Development Facility (STDF). Sixteen participants from 9 Asian countries, namely Bangladesh, Cambodia, Indonesia, Lao PDR, Malaysia, Sri Lanka, Thailand, Viet Nam and Singapore, participated in this training workshop.

Pesticide Residues Training Workshop for 'CLMV Countries' under AFTLC-PTB ASEAN Project IV

AFRL for Pesticide Residues collaborated with PTB of Germany, delivered Laboratory Training on Pesticide Residues Analysis from 19 to 22 March 2024 as part of AFTLC-PTB ASEAN Project IV. A total of 12 participants from 4 ASEAN Member States, namely Cambodia, Laos, Myanmar & Vietnam attended in this training workshop. The training programme featured a blend of theoretical lectures and hands-on laboratory sessions."

Analytical Capability Building for Singapore Commercial Laboratories under the Laboratory Recognition Programme

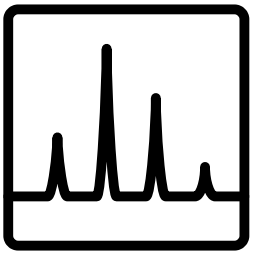
Besides running the ASEAN regional capacity programs, the AFRL under its role as an NFRL also endeavors to enhance the testing capabilities of Singapore's commercial laboratories under the laboratory recognition programme (LRP). A training session dedicated for the determination of inorganic bromide residues in cereal product was organized in April 2023. Separately, a training session on the determination of ethylene oxide residues in form of 2-choroethanol in a range of food matrices was conducted in Mar 2024.



New Developments

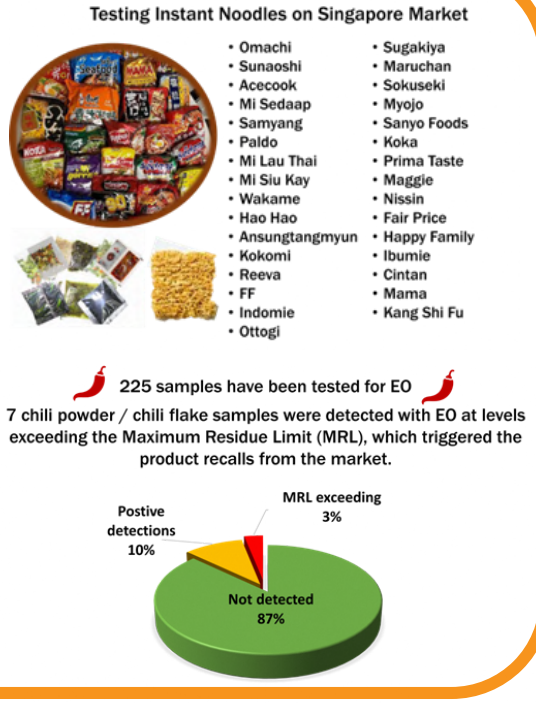
NEW METHODS

- A LC-MS/MS method for polar pesticides including glyphosate, glufosinate and ethephon have attained SAC-SINGLAS accreditation in 2020
- A GC-MS/MS method for 2-Chloroethanol (expressed as Ethylene Oxide) has been developed and SAC-SINGLAS accredited in 2023
- A LC-MS/MS method for ETU/PTU as the major metabolite of dithiocarbamate fungicides has been developed



FOCUS STUDY ON ETHYLENE OXIDE

AFRL for Pesticide Residues completed a focus study on ethylene oxide in over 200 instant noodles and ice cream samples.



Participation in Regional and International Meetings

Codex Committee of Pesticide Residues (CCPR)

Reps from AFRL for Pesticide Residues participates in the CCPR annually and in 2023, Singapore gained unanimous support from CCPR members to co-chair the Electronic Working Group (EWG) on the Development of Guidance for Monitoring the Stability and Purity of Reference Materials and Related Stock Solutions of Pesticides during Prolonged Storage.

ASEAN Expert Working Group on the Harmonisation of MRLs

Reps from AFRL for Pesticides Residues also participates actively in the ASEAN EWG-MRLs annual meeting and serve as the Chair for the EWG-MRLs from 2023 to 2025.

United States Department of Agriculture (USDA) Cooperation on Global Pesticide Engagement with ASEAN Member States

The event was organized by US Department of Agriculture (USDA). It centred on import Maximum Residue Limits (iMRLs) setting based on APEC Guidelines for international agri-food trade facilitation. It served as a platform for discussing the ASEAN-USDA Pilot Project on two-way pesticide iMRL setting, sharing experiences and updates from participating ASEAN Member States, and reviewing the progress of iMRL proposals between ASEAN countries and the United States.

The forum also facilitated discussions on capacity building programmes, explored national registration policies for minimum risk pesticides, and provided updates on the ASEAN Pesticide Management Harmonisation Programme. Additionally, it allowed for the sharing of information on MRL establishment efforts across different ASEAN countries. The overarching aim was to foster knowledge exchange in MRL setting, promote harmonisation of pesticide management practices, and enhance regulatory frameworks for safe use of pesticides across the ASEAN region.

Engagement in Collaborative Workshops and Global Initiatives

FAO Regional Workshop on MRL Setting and Risk Assessment

The FAO regional workshop “Pesticide residue risk assessment and the establishment of Maximum Residue Limits in Asia” was held in Bangkok on 20-24 November 2023. Two Representatives from AFRL for Pesticide Residues attended the Workshop, together with other 23 participants from 14 countries, including Brunei Darussalam, Cambodia, India, Indonesia, Laos, Malaysia, Pakistan, the Philippines, Singapore, Thailand, Viet Nam, Timor-Leste, Sri Lanka and Kiribati.

“THE MEETING PROVIDED FIRSTHAND TRAINING BY JMPR EXPERTS TO ENHANCE CAPABILITIES IN PESTICIDE RESIDUE RISK ASSESSMENT AND INTERNATIONAL PRACTICES IN SETTING PESTICIDE MRLS.”

Regional Workshop on Food Safety Systems in ASEAN, and ASEAN Meeting on Highly Hazardous Pesticides (HHPs)

The Regional Workshop on Food Safety Systems in ASEAN and ASEAN Meeting on Highly Hazardous Pesticides (HHPs) were jointly organized by ASEC and Thailand's Department of Agriculture from 17-18 July 2023. Two Representatives from AFRL for Pesticide Residues participated the Meeting together with participants from 9 ASEAN Member States. The events aimed to update participants on global and regional food safety developments, establish a network for knowledge exchange on food safety and sustainable agrochemical use, discuss draft ASEAN statements on eliminating hazardous agrochemicals, and promote better regional coordination for safe agrochemical use. The meetings also addressed the Draft Preliminary list of HHPs still used in ASEAN.

Department of Food & Drug Administration, Ministry of Health and Sports, Myanmar

INTRODUCTION

Myanmar, a member state of the Association of Southeast Asian Nations (ASEAN), has made significant strides in enhancing the quality and safety of its food products.

A crucial aspect of this effort is the accreditation of food testing laboratories, both in the public and private sectors, to ensure they meet international standards and practices. With the aim of increase networking and strengthening the capacities of food testing laboratories within the region, Myanmar is also a member of ASEAN Food Testing Laboratory committee (AFTLC). Myanmar has been trying to establish National Reference laboratory even though facing with difficult situations.

Myanmar Food Testing Laboratory Network (MFLN) was established in 2021. 20 of Myanmar Food testing laboratories from both private and public sectors are now being as member laboratories. To upgrade the capacities of laboratories and qualities of their testing activities, several laboratories in Myanmar have sought accreditation to demonstrate their competence and reliability in testing food products.

Public Sector Laboratories are also engaged in capacity-building activities to enhance their technical capabilities and meet international accreditation requirements.

In addition to public sector laboratories, Myanmar has seen a growth in the number of private food testing laboratories. These laboratories cater to the needs of food manufacturers, exporters, and importers, providing a range of testing services to ensure the quality and safety of their products. Many private laboratories in Myanmar have also pursued accreditation to demonstrate their competence and reliability in food testing.

In 2023, one public laboratory and 2 private sector laboratories have accredited for ISO/IEC 17025 for food testing activities.

While the accreditation process has helped improve the quality of testing services in the country, challenges such as limited resources, technical expertise, and awareness about accreditation persist, particularly among smaller laboratories in rural areas.

To address these challenges, there is a need for greater collaboration between public and private sectors, as well as with international partners and organizations. Capacity-building initiatives, including training programs and technical assistance, can help enhance the skills and capabilities of laboratory staff and improve the overall quality of food testing services in Myanmar.

In conclusion, the accreditation of food testing laboratories in Myanmar, both in the public and private sectors, is a crucial step towards ensuring the safety and quality of food products. Continued support and investment in laboratory infrastructure, capacity building, and collaboration efforts will further strengthen Myanmar's food testing capabilities and contribute to a safer and more reliable food supply chain.

جابتن ڤرتانين دان اكري ماكنن
AGRICULTURE AND AGRIFOOD DEPARTMENT
MINISTRY OF PRIMARY RESOURCES AND TOURISM | BRUNEI DARUSSALAM

VETERINARY LABORATORY SERVICES DIVISION OF LIVESTOCK AND VETERINARY SERVICES DEPARTMENT OF AGRICULTURE AND AGRIFOOD, BRUNEI DARUSSALAM

Reported by: Nura Fazira Noor Azam
(Chief Laboratory Technician)
Technical Manager of Drug Laboratory, Veterinary Laboratory Services

COLLABORATIVE ACTIVITIES FOR THE DETECTION OF MULTIDRUG RESIDUES ANALYSIS USING LC-MS/MS

Veterinary Laboratory Services (VLS) under the Department of Agriculture and Agrifood in Brunei Darussalam is the National Veterinary Laboratory that provides examination and testing services that support the livestock industry in Brunei Darussalam. VLS is established in 1978 and was previously located at Brunei Agriculture Research Center (BARC), Kilanas, Bandar Seri Begawan. Since 2022, VLS have been relocated to Kawasan Kemajuan Pertanian (KKP) Terunjing, Bandar Seri Begawan with its facilities upgraded and modernised under the Brunei Darussalam's 11th National Development Plan 2018 – 2023 with the budget of more than B$6,000,000. VLS is an ISO/IEC 17025:2017 accredited laboratory for the scope within the field of Chemical and Biological Testing since 2012. There are five sub-units under VLS: Animal Diagnostic, Veterinary Public Health, Feed and Biotechnology, Salmonella Reference Lab, and Quality Management. Additionally, some of the laboratories in VLS have obtained the certification for Biosafety Level 2 (BSL 2) and Biosafety Level 3 (BSL 3) in 2023.

To ensure the quality and the safety of the local livestock products for public consumption, Drug Residue Laboratory (DRL) under Veterinary Public Health sub-unit, perform the screening and confirmatory analyses of drug residues in different matrices, i.e., chicken meats, beef, and eggs. ELISA (Enzyme linked immunosorbent assay) is the technique used for screening purposes whereas for confirmatory analyses, liquid chromatography tandem mass spectrometry (LC-MS/MS) based method is opted. The LC-MS/MS instrument was successfully installed and commissioned in July 2022 as a step to increase the laboratory capacity in detecting multi drug residues in different sample commodities.

To pave the way to successfully validate the test method for the multi drug residues, VLS through DRL have collaborated with Drug Residue Laboratory of Organic Chemistry Branch, Singapore Food Agency (SFA). Training on the multi drug residues in poultry eggs was conducted from 12th July 2022 until 16th July 2022 at the National Centre of Food Science (NCFS) and the officers from SFA involved were Dr Shen Ping (Head of Organic Chemistry Branch), Ms Teo Guat Shing (Head of Drug Residue Laboratory), Ms Huang Lifei, and Dr Valerie Sin. As for the officers from VLS who attended the training was Mr Maidin bin Haji Md Salleh (Head Unit of VLS), Ms Nura Fazira binti Noor Azam (Chief Laboratory Technician), and Ms Haruzie @ Rozi binti Kifle (Laboratory Technician).

Training on the Testing of Veterinary Drug Residues in Poultry Eggs at SFA, Singapore in July 2022

The training comprises of the briefing on the related MRLs for some of the compounds, the test methods for multi drug residues and nitrofuran metabolites, practical sessions, software handling training, and basic operation of the Thermo Scientific Orbitrap Exploris 240 Mass Spectrometer. The training in Thermo Scientific was handled by Mr Eric Tan (application chemist of the Singapore branch).

Ms Huang Lifei and Dr Valerie Sin had also come to VLS, Brunei Darussalam (5th - 8th September 2022) to assist with the method development and validation of the detection of multi drug residues in eggs. The application chemist from Thermo Scientific Malaysia, Mr Tristan Chia was also involved to provide support from Thermo Scientific counterpart. The method validation was subsequently completed and ISO/IEC 17025:2017 accreditation was granted for the test method in March 2023 specifically for egg matrix, and 55 compounds of veterinary drugs. DRL had participated in two PT programmes in 2022 and 2023 based on LC-MS/MS analyses and have tested two different sample matrices which were turkey muscles, and milk

Moreover, to enhance the knowledge on the analysis of drug residues, the personnel in VLS have been actively attended training courses related to drug residues analysis (Table 3).

Since October/November 2022, Brunei Darussalam through Golden Chick Livestock Sdn. Bhd. has conducted trial export batch of poultry eggs to Singapore and after three successful batches, it was officially announced by the Singapore officials that the exported poultry eggs from the specific company has been approved and accepted for continual and routine programme. For the year 2022, approximately 1.25 metric tonnes of eggs have been exported.

As the way forward for VLS, drug residues detection in poultry meat, and in animal feed will be validated prior to offering the tests to clients. Additionally, moving forward for the Department of Agriculture and Agrifood, Brunei Darussalam, by means of the laboratory testing that can be performed in VLS, we are hoping to successfully support the export of poultry meat to Malaysia and Singapore. Furthermore, the department will maintain and improve the drug residues monitoring through the collaboration of Veterinary Public Health Unit, Animal Health and Disease Control Unit and Veterinary Laboratory Services as to ascertain that no prohibited drugs are being used in the farms as well as that the controlled drugs are being used within the permitted and safe level.

Attachment Training on Veterinary Drug Residues Analysis in Feed and Meat (Singapore) - May 2023

Training with the Drug Residue Team at SFA

Training Course on Risk-Based Drug Residue Monitoring in Food (Quezon City, Philippines) - July 2023

No	Title	Date	Host
1	Attachment Training on Testing of Veterinary Drug Residues in Poultry Eggs	12th – 16th July 2022	Drug Residue Laboratory, National Centre for Food Science, Singapore Food Agency, Singapore
2	Attachment Training on Veterinary Drug Residues Analysis in Feed and Meat	22nd – 25th May 2023	Drug Residue Laboratory, National Centre for Food Science, Singapore Food Agency, Singapore
3	AFRL for VDR Webinar 2023: Analysis of Colistin Residues in Animal Tissue by LC-MS/MS	15th – 16th June 2023	Veterinary Public Health Laboratory (AFRL for VDR), Bureau of Quality Control of Livestock Products, Department of Livestock Development, Pathumthani, Thailand
4	Regional Training Course on Risk-Based Drug Residue Monitoring in Food	3rd – 7th July 2023	International Atomic Energy Agency (IAEA) in collaboration with Department of Agriculture, Quezon City, Philippines

Table 3: List of Trainings Attended based on Drug Residues Testing (2022 - 2023)

Brunei's New Food Safety Structure

أوتوريتي ماكنن بروني دارالسلام
BDFA
BRUNEI DARUSSALAM FOOD AUTHORITY

Introduction to Brunei Darussalam Food Authority (BDFA)

The Brunei Darussalam Food Authority (BDFA) is a statutory body established on the **1st of January 2021** as a regulatory and competent authority for food safety and quality in Brunei Darussalam. Through its functions, responsibility and scope, BDFA works to bring forward its vision and mission to life in ensuring food safety for the Bruneian community.

BDFA's vision includes ensuring that food in Brunei Darussalam is of high quality, clean and safe and therefore protecting everyone's health and safety. Its vision is also to ensure food produced in Brunei Darussalam is trusted and known throughout the world. BDFA's mission is to strengthen and further develop a robust food safety system in order to achieve its vision.

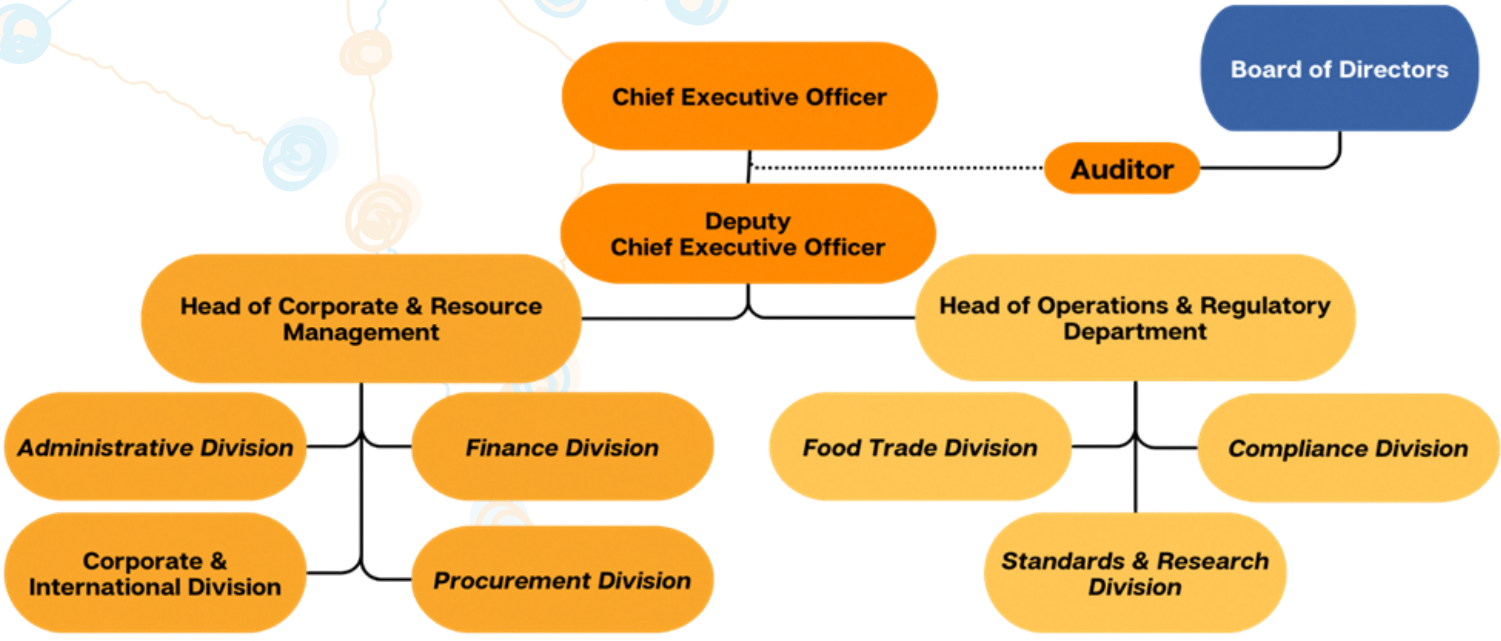
BDFA functions to ensure that all food in Brunei Darussalam are safe and of good quality by enforcing relevant food legislations and implementing a strong food safety system. BDFA works to ensure all food related businesses, operators and persons will follow good standards for personal hygiene and food products and inspect, test and certify food or premises.

BDFA facilitates and assists parties to meet the food safety standards and requirements in place. BDFA conducts inspections, surveillance and sampling and are also involved in the issuance of food related permits, certificates (including export) and licenses. We also provide consultation on food safety related issues and ensure accurate food handlers health education and conduct food import registrations.

BDFA holds the responsibility to ensure food is safe from their manufacturer to when it is sold on the shelves. This includes processed food, fresh meat and vegetables that have left the farm and imported food products.

Brunei Darussalam Food Authority Organizational Structure

The BDFA consists of a multidisciplinary team led by the Chief Executive Officer. The BDFA reports to the Minister of Health of Brunei Darussalam, however it is managed by the Board of Directors consisting of an executive committee which jointly supervises the activities of the organization which includes the Chairman ; the Deputy Minister of Finance and Economy, and members from the Ministry of Primary Resources and Tourism, Ministry of Health, Ministry of Finance and Economy, Ministry of Religious Affairs, Attorney General's Chambers and the Brunei Economic Development Board.



Association between BDFA and the local National Food Reference Laboratory (NFRL)

The BDFA works closely with the local National Food Reference Laboratory (NFRL), namely the Department of Scientific Services (DSS), Ministry of Health, Brunei Darussalam.

As part of BDFA's role in ensuring food safety, the Authority regularly submits samples to DSS for laboratory analysis for any surveillance or investigation activities. These analysis involves microbiological testing and chemical testing (for heavy metals, veterinary drug residue and pesticide residue) including Ready-To-Eat (RTD) food, raw meats, fresh fruits and vegetables, processed prepackaged food products which are either imported, sold locally or intended for export.

PARTICIPATION IN JOINT INSPECTION ACTIVITIES WITH OTHER AGENCIES

The BDFA often participates in Joint Inspection with other agencies including the Environmental Health Division, Pharmaceutical Services Division, Ministry of Home Affairs etc.



CONDUCTING AWARENESS TALKS

Upon request, the BDFA also provides awareness talks on food safety to the public.

Existing collaboration with Singapore Food Agency (SFA)

SOCIALIZATION ON THE ROLES AND FUNCTIONS OF THE BDFA
9th March 2021

SOCIALIZATION FOR SLAUGHTERHOUSE LICENCING
13th September 2022

SOCIALIZATION OF THE PBD 38:2022 GOOD MANUFACTURING PRACTICES
21 March 2023

SOCIALIZATION OF THE PBD 37:2023 STANDARDS FOR CHILLI SAUCE
21st November 2023

SOCIALIZATION OF THE PBD 44:2023 GUIDELINES ON FOOD PACKAGING MATERIALS
21st November 2023

SOCIALIZATION OF THE NEW FOOD IMPORT REGISTRATION SYSTEM
22nd November 2023

At present the BDFA works closely with SFA and have established a channel for the exchange of information between the two Authorities. The BDFA are also participates in assisting the Ministry of Primary Resources and Tourism during Export Audits involving the SFA whereby representatives from Singapore will assess potential exporters on-site.

In addition to that, the BDFA is working on further strengthening relations with the SFA through signing of Memorandum of Understanding (MOU) in the near future.

Relocation of NCFS to New Site

In October 2022, NCFS has relocated from Perahu Road and Outram Road to its new premises at the International Business Park. The strategic consolidation of both food laboratories into a single location streamlines operations, improves accessibility for inspectors to submit samples for testing, and provides greater accessibility for external collaborations and industry partnerships.

NCFS Official Opening and Open House (Oct 2023)

Singapore's Laboratory Recognition Programme

Singapore Food Agency (SFA) rolled out the Laboratory Recognition Program (LRP) in 2019 with the aim to establish a network of private laboratories recognised for their capabilities to meet food safety testing needs of SFA and the Industry. There are currently 13 recognised laboratories in the LRP network supporting export certification, in-house quality control of the food industry, as well as food regulatory and surveillance testing.

SFA's National Centre for Food Science (NCFS) provides oversight on the competency of these recognized laboratories through on-site verification checks and documentary reviews, strengthen their testing competencies through capability building programs and provision of interlaboratory comparisons.

Laboratories looking to be recognized under the LRP have to undergo a rigorous two-stage assessment after the initial application which consists of documentary review and on-site verification. Applicant laboratories have to provide supporting documents to prove their technical competency for the test scopes that they are applying for recognition. including accreditation from the Singapore Accreditation Council (SAC), participation in proficiency testing with satisfactory results, method SOPs that are fit for purpose with respect to detection and quantification limits, accuracy and specificity, and comprehensive method validations with good coverage of different food matrices.

SFA LABORATORY RECOGNITION PROGRAMME

SFA's Recognised Laboratories for Food Safety Testing (as of April 2024)

- ALS TECHNICHEM (S) PTE LTD
- AMLAB SERVICES PTE LTD
- BV-AQ (SINGAPORE) PTE LTD
- CHEMICAL LABORATORY (SINGAPORE) PTE LTD
- ELEMENT TESTING SERVICES (S) PTE LTD
- EUROFINS FOOD TESTING SINGAPORE PTE LTD
- PACLAB PTE LTD (PACIFIC LAB SERVICES)
- ROMER LAB SINGAPORE PTE LTD
- SETSCO SERVICES PTE LTD
- SGS TESTING & CONTROL SERVICES SINGAPORE PTE LTD
- STATS ASIA PACIFIC PTE LTD
- TUV SUD PSB PTE LTD
- UGENE LABORATORY SERVICES PTE LTD

***Note: In no order of merit**

Document review by SFA Scientists

LRP on-site Verification Check

To ensure continuous compliance to the LRP requirements, SFA officers conduct on-site renewal assessments. The laboratories are required to perform corrective actions for gaps that are identified within a stipulated timeframe. Certificates of recognition will be issued after the verification team completed their review and assessed that the laboratories have met the LRP requirements.

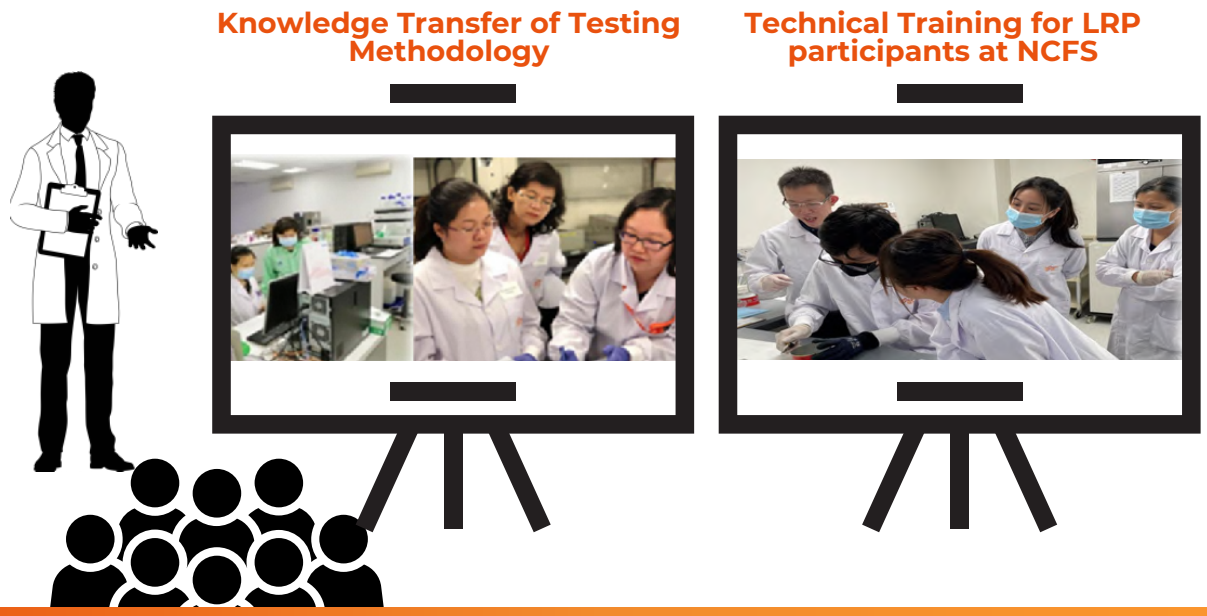
Capability Building Activities

In 2023, NCFS has organized more than 10 technical training sessions for the LRP laboratories and facilitated knowledge transfer on testing methodologies on food safety.

LRP laboratories have also benefited through participation in ASEAN proficiency testing and interlaboratory comparison programs organised by NCFS. In testing areas without commercial proficiency test providers, NCFS has curated interlaboratory comparison exercises for the LRP laboratories to verify their test methods as well as staff competency.

Technical Trainings Conducted in 2023
• Vibrio parahaemolyticus, Salmonella serotyping, Norovirus quantitation • Tests for foodborne bacteria in food and food contact surfaces - C.sakazakii, E.coli O157:H7, STEC detection and serotyping, C.botulinum, S.agalactiae (Group B Streptococus), Environmental swab testing • Tests linked to antimicrobial resistance testing - ESBL E.coli, Aeromonas app., Enterococcus spp • Tests for enteric viruses in food and food contact surfaces - Hepatitis E, Hepatitis A, Rotavirus • Screening of parasitic animals in food • Incubation test and can seam test for canned food • Low level heavy metals test, Inorganic Arsenic by SPE/ICP-MS • Bacterial Toxins using ELISA techniques • Testing of Sudan dyes, Rhodamine B, Sunset yellow using LC-MSMS • Testing of Food additives – Boric acid, Maleic Acid, DHAA, etc

Table 4: Technical Trainings Conducted in 2023



Benefits of LRP

Since its inception in 2019, the LRP has resulted in an 80% reduction in lead time for food export certification. The number of recognized tests has also increased by more than 50%. The food industry and manufacturers now have greater access to efficient and high quality food safety testing. Many of the LRP laboratories found that the LRP had raised their Quality Standard and broaden their testing capabilities on food safety testing which would provide greater confidence in test results by the food industry, consumers and regulatory authority of importing countries. Most importantly, an increase in business opportunities and to be part of the National food safety ecosystem.

LRP – Strategic Partners of Food Safety Ecosystem in Singapore

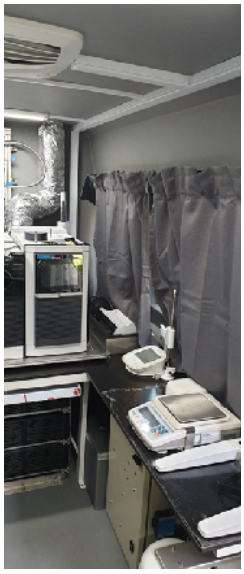
SFA adopts partnership approach in food safety, where all parties from the Government to the industry and consumer play their parts. In the LRP, it is a partnership between the Government and private laboratories. These LRP partners are good strategic partners both during peace time and in the event of food safety emergencies. SFA will continue to build the LRP network through continuous engagement, technical exchanges and competency building activities contributing towards maintaining a high food safety standard in the region.

SFA partnering Enterprise Singapore, LRP Labs and Food Industry in Public Engagement

4th Annual LRP Stakeholder Engagement 2023

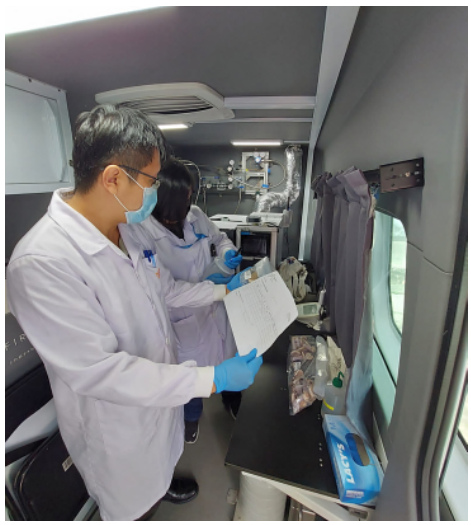
Food Safety Laboratory On The Go —The Mobile Laboratory Developed and Operated by the National Centre for Food Science of Singapore Food Agency

As Singapore's national reference laboratory for food safety testing, the National Centre for Food Science (NCFS) provide testing data as scientific evidence to support the key regulator decision of Singapore Food Agency, the national regulatory authority for food safety and food security. Like in many other countries, food samples for a range of routine regulatory programmes and ad hoc foodborne outbreak investigations are collected by inspection department, then transported to pertinent laboratories under NCFS for carrying out designated laboratory testing and diagnosis. The current workflow, while serves SFA's daily operations well during peace time, may experience various constraints in supporting emergency needs, which very often require fast turnaround in testing and diagnostic results to enable rapid and sound regulatory decision making on the ground.



To overcome the limitation of inhouse food safety testing in a view to strengthen SFA's strategic preparedness in food safety emergencies as well as operation efficiency, a group of Scientists in NCFS work together with the audacious goal of developing a mobile laboratory, first of its kind in ASEAN region, to meet the requirements for time-critical food safety testing and diagnosis. The project work for developing the mobile laboratory was carried out in 2020-22 when Singapore and the world were at the height of the Covid-19 pandemic, during which the NCFS project team had to work innovatively for tackling the numerous difficulties experienced. The mobile laboratory was successfully developed and commissioned in mid of 2022, equipped with a multiplex PCR system, a gas chromatograph triple quad mass spectrometer (GC-MSMS) system and a gamma spectroscopy system all with highly compact design for supporting the detection and identification of a wide range of foodborne biological, chemical, and radiochemical hazards.

By the end of 2023, ISO 17025:2017 accreditation has been achieved for the rapid detection of a panel of gastrointestinal pathogens as well as the residues of a large number of pesticides and three common gamma radionuclides, namely Cs-134, Cs-137 and I-131. More testing methods with close relevance to food safety emergency response are being developed and validated for further expanding the analytical capabilities of the mobile laboratory. Since its inception, the mobile laboratory has been regularly deployed for supporting food safety assurance programme in Singapore's major events as well as daily operations, including food poisoning incident, farm investigations and etc.



In recognition of the innovative endeavour of NCFS Scientists for constantly strengthening the Centre's role as a centre of excellence in food safety testing and diagnosis, the mobile laboratory project has received several awards from SFA and Ministry of Sustainability and Environment. In its relentless pursuit of scientific excellence, the Scientists in NCFS have embarked on a new journey for developing the next generation of mobile laboratory for further enhancing the analytical capabilities and sample throughput for supporting SFA's vision and mission.

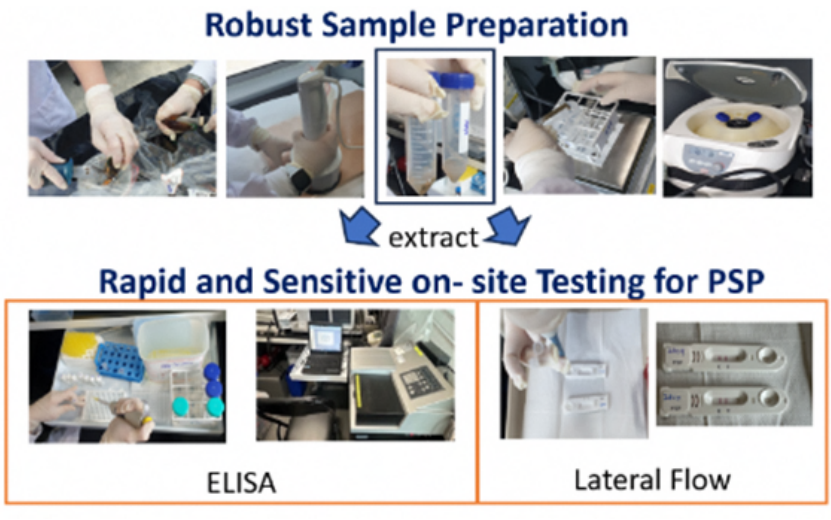
Deployment of Mobile Laboratory

1 FIRST OPERATION AT NATIONAL DAY PARADE 2022

SFA deployed the Mobile Lab for its first operation at NDP 2022, where onsite testing of pathogens on food contact surfaces at food catering establishments was conducted. The Mobile Lab allowed NCFS scientists to detect pathogens in food contact swabs within just 2 hours, which enabled SFA to direct establishments to perform immediate rectifications such as sanitising the affected areas in order to mitigate potential food safety risks.

2 RAPID ON-SITE TESTING OF PSP IN LOCALLY FARMED MUSSELS

SFA's mobile laboratory was deployed to Lorong Halus Jetty to perform marine biotoxin testing on locally farmed shellfish to determine the presence of Paralytic Shellfish Poison (PSP) as a result of algae bloom. Mussel samples were collected from local farms and tested by NCFS scientists on the mobile laboratory. On-site testing were completed within a short span of 3 hours, without any detection of PSP in the shellfish samples investigated.



Physikalisch-Technische Bundesanstalt
National Metrology Institute

Regional Capacity Building on Pesticide Residue Testing

The PTB-sponsored project aims to

- **Build the pesticide residue testing capabilities for the national food reference laboratories of CLMV**
- **Have a harmonised food safety methodologies in ASEAN to ensure food safety**
- **Facilitate agri-food trade and spur ASEAN integration and prosperity**

NCFS conducted Part 1 of the AFTL-PTB ASEAN Phase IV Project: Technical Training on Pesticide Residues Analysis from 19 to 22 March 2024. The training workshop was attended by 12 participants from Cambodia, Lao PDR, Myanmar and Vietnam (CLMV). The training programme featured a blend of theoretical lectures and hands-on laboratory sessions focusing on multi-pesticide residues extraction techniques and detection using both GC-ECD and GC-MSD.

CLMV's presentation on their challenges

Hands-on laboratory session

Demonstration on the operation of advanced instrumentation

Physikalisch-Technische Bundesanstalt
National Metrology Institute

Regional Capacity Building on Pesticide Residue Testing

In October 2024, Part 2 training was held in Cambodia as a collaborative effort between PTB, SFA (NCFS), and Cambodia's Consumer Protection Competition and Fraud Repression Directorate General (CCF). The training, organised by NCFS officers, aimed to build upon the first part by applying previously shared skills and knowledge. The primary objectives were to develop and validate fit-for-purpose pesticide residue testing methods in line with ISO17025:2017 guidelines, and to support the national laboratory of Cambodia (NFRL) in achieving ISO17025:2017 accreditation for pesticide residues analysis.

Lecture Sessions

Scoping to fit for the specific purpose of national residues program and key aspects of method validation to meet the requirement of ISO 17025.

Review & Application

Collection and compilation of data for method validation report.

Laboratory Sessions

Method setup on the GC-MS system and sample preparation, accompanied by related documentation, alongside a strategy for addressing borderline results to ensure reliable test outcomes that support effective decision-making in pesticide MRL enforcement.

FROM THE EDITORIAL TEAM

AFTLC BULLETIN, 5TH ISSUE

The editorial team would like to thank ASEAN Secretariats, the representatives of ASEAN food reference laboratories, and the contributing authors for the precious contributions, continued support and deep involvement in the development of this bulletin. Without their excellent work, extra efforts and dedication on food safety monitoring and testing, the activities by ASEAN food testing laboratories would never be so exciting and impressive, and we would not be able to capture and present the great works by them with this AFTLC bulletin.

We would like to express our great appreciation to the long-term development partners: Physikalisch-Technische Bundesanstalt (PTB) Germany and International Life Sciences Institute Southeast Asia Region (ILSI-SEAR), for their constant support and contribution with expertise and professionalism on laboratory capability building in ASEASN member states.

The editorial team hopes that this issue of AFTLC bullet will continuously bring you pleasure of reading and provide opportunity to appreciate the works and initiatives of ASEAN food testing laboratories.

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