Activity Report
(Thailand Chapter) By Dr. Naraya Ntangsirisap

Veterinary Public Health Laboratory (VPHL), Bureau of Quality Control of Livestock Products, Department of Livestock Development is one of the Competent Authority (CA) which responsible for providing laboratory services and monitoring the quality and safety of products from animal origins. Analysis of microbiology, heavy metals, pesticides, mycotoxin, and veterinary drug residues have been conducted to ensure safety and quality of animal-derived products. The laboratory techniques employed at VPHL are conformed to national and international standards. Veterinary Public Health Laboratory was the 1st ISO/IEC guide 25 accredited testing laboratory in Thailand (Acc. No. Testing 0001) on 29 Dec. 1995.

Recently, VPHL was ISO/IEC 17025:2005 accredited by Bureau of Laboratory Quality Standards, Department of Medical Science and Bureau of Laboratory Accreditation, Department of Science Service (Thailand's Accreditation Body). Twentieth-one testing scopes of veterinary drug residues, heavy metals and pesticides were accredited according to ISO/IEC 17025:2005. In addition, VPHL was selected and appointed under EC – ASEAN Economic Cooperation Programme on Standards, Quality and Conformity on “Strategies for Strengthening Food Testing in ASEAN” to be an ASEAN Food Reference Laboratory for Veterinary Drug Residues Since 2004.

The VPHL activities:

1. RAS 5078.002 RTC on Radio Receptor Assays Related Screening and Confirmatory Methods for Veterinary Drug Residues and Associated Chemical/Natural Food Contaminants on 22nd May to 2nd June 2017
   Twenties-seven participants from 14 RAS5078 project member states: Bangladesh, Indonesia, Jordan, Lao P. D. R., Lebanon, Mongolia, Pakistan, Philippines, Singapore, Sri Lanka, Syrian Arab Republic, Viet Nam and Thailand attended the training course. Dr. Sujittra Phongvivat, on behalf of Dr. James Sasanya (Project Technical Officer; TO), did an overall introduction of the radiometric/isotopic analytical techniques and food contaminants. Participants from each member state
did their country presentation, sharing on the participant’s organization, overview roles/activities and participant’s duties/responsibilities stress on food safety testing activities and food safety regulatory system including test methods, techniques and equipment used in their laboratories and method’s performance. The following topics (theory and practical) were included.

1. Charm II techniques for screening mycotoxins, pesticides and antibiotics i.e. sulfonamides, tetracyclines, beta-lactams, amphenicols, macrolides in milk, meat/fish, eggs

2. Principle of analytical instruments and technical analysis for veterinary drug residues, pesticides residues and mycotoxins in food i.e. HPLC-FD, LC-GC-MS

3. Regulations/guidelines for veterinary drug residues analysis

2. A training course: “Analysis of Beta-agonists in urine by ELISA” on 16th – 21st March 2017

Fifteenth participants from Division of Veterinary Inspector and Quarantine, Department of Livestock Development attended the training course. Both theory and practical were included in this training course.
3. RAS 5078. 001 Regional Training Course on Basic Maintenance and Troubleshooting of Food Safety Analytical Instrumentation including Effective use of Instrument Software, Singapore on 20th – 24th March 2017

Ms. Apichaya Sunthong (Team member of IAEA RAS5078) and Ms. Nuntaporn Ngiewdang (Staff of VPHL) participated in this training course. The feedback of participants:

RAS 5078.001 provided us great hands-on experience from demonstration from AVA and other leading companies in analytical instrumentation including Waters, Agilent, Sciex and Thermo. Each member states also shared their knowledge, experience in troubleshooting using analytical instrument especially Mass Spectrometry technique. Moreover, some MS also presented progression on working with RAS5078 ex. Strengthen their food safety standard by building capacities of monitoring and detection residues in food. Participants have gained knowledge of advantages-disadvantages, limitation of the presented techniques so we can decide on which techniques that suits our work. During lab practice, participants had some discussion against our routine work and Q&A with participants-trainers. However, some sessions that related instrument parts, participants had not enough space and time to get close to them, nevertheless we got very good respond and great effort from organizer in all aspects. (Apichaya Sunthong, CP, Thailand)

Analytical methods and experience were shared during the training course e.g. CHARM II technique from AVA and other techniques from participants. Participants have also been updated about the latest analytical instrument and technology from analytical companies. Sharing network among participants is ongoing and encourage during the training course. After participation, I gained more knowledge of CHARM II, LC-MS/MS including theoretical and practical parts. Moreover, I have more information for making better decision on choosing instrument for residue analysis. (Nuntaporn Ngiewdang, Thailand)

Twenty participants from six ASEAN member states: Indonesia, Malaysia, Myanmar, Singapore, Vietnam and Thailand attended the workshop. The theoretical part specially given by EURL experts from Germany; Dr. Joachim Polzer and Dr. Wolfgang Radeck. Participants from each member state did their country presentation, sharing on their residue control plan (RCP) and routine/current testing methods used for veterinary drug residues analysis. The following topics (theory and practical) were included:

1. Mass spectrometry and its application for confirmation of multi-residue of anticoccidials in animal products, control chart for internal quality control, data processing and result interpretation
2. Revision of Decision 2002/657/EC, new EU regulations, limits and other relevant guidelines.
5. **26th International Conference of the World Association for the Advancement of Veterinary Paraitology (WAAVP), Malaysia on 3rd – 8th September 2017**

Dr. Sujittra Phongvivat, Veterinarian, Expert level, gave a poster presentation in topic “Evaluation of Multi-Class, Multi-Residues screening and confirmation Method (MMM) for 77 Veterinary Drug Residues in Pork and Chicken Muscle using LC-MS/MS”

**Poster:** Evaluation of Multi-Class, Multi-Residues screening and confirmation Method (MMM) for 77 Veterinary Drug Residues in Pork and Chicken Muscle using LC-MS/MS

6. **Thailand laboratory 2018 on 6th – 8th September 2017**

Dr. Naraya Tangsirisap, Head of Veterinary Drug and Hormone Residues Analysis Laboratory, was invited as a speaker to give a presentation in topic “Analytical methods for veterinary drug residues in meat and meat product”

7. **Briefing/Debriefing about the international meeting on 25th January 2018**

Dr. Naraya Tangsirisap, Head of Veterinary Drug and Hormone Residues Analysis Laboratory, was invited as a speaker to give a presentation in topic “the 11th ASEAN Food Testing Laboratory Committee, AFTLC”
8. **Development and Validation of Methods**
   1. Development and Validation of Confirmatory Method for 15 Sulfonamide Residues in Honey by LC-MS/MS
   2. Development and Validation of confirmatory method for quinolone and fluoroquinolone residues in muscle by LC-MS/MS

9. **Analytical service (routine work)** for Banned substances i.e. Chloramphenicol, Nitrofuran Metabolites, Beta-agonists, Nitroimidazoles and Antibiotic residues, i.e. Tetracyclines, Sulfonamides, Macrolides, Beta-lactam including Hormones i.e. Diethylstilbestral in tissues, honey, egg, urine by ELISA, HPLC, LC-MS/MS: 16,000 samples (Year 2017)

**Future Plan:**
1. Data sharing and participation in IAEA TCP RAS5078 activity plan
2. Development and validation of confirmatory method for colistin in muscle by LC-MS/MS
3. Development and validation of confirmatory method for thyreostats in muscle by LC-MS/MS
4. AFRL for VDR workshop 2018
5. Analytical services (routine work) for Banned substances i.e. Chloramphenicol, Nitrofuran Metabolites, Beta-agonists, Nitroimidazoles and Antibiotic residues, i.e. Tetracyclines, Sulfonamides, Macrolides, Beta-lactam including Hormones i.e. Diethylstilbestrol in tissues, honey, egg, urine by ELISA, HPLC, LC-MS/MS
6. Implement CHARM II technique for screening antibiotic residues in milk