

**33rd Asia Pacific Metrology Programme General Assembly**  
**24 November – 1 December 2017**  
**New Delhi, India**

**Laboratory Report**

*Chemical Metrology Laboratory, Health Sciences Authority (HSA), Singapore*

**Section 1: Laboratory Related Matters**

The Chemical Metrology Laboratory of HSA is an accredited Proficiency Testing Provider (ISO/IEC 17043) since August 2013.

**Proficiency Testing (PT) Programmes**

HSA offers the following accuracy-based PT programmes to local testing laboratories in 2017:

(1) External Quality Assessment (EQA) Programme in Clinical Chemistry

The programme comprises two cycles per year. A total of 17 analytes are included in the 2017 programme. They are:

Human serum: creatinine, glucose, LDL-cholesterol, HDL-cholesterol, total cholesterol, triglycerides, urea, uric acid, calcium, sodium, potassium, iron, magnesium and chloride  
Human blood: glyated haemoglobin (HbA1c), 2 levels per cycle  
Human urine: albumin and creatinine

(2) PT Programme:

(a) Inorganic elements and arsenic species in brown rice flour

**Certified Reference Materials (CRMs)**

The following CRMs are produced in 2017:

- (1) HRM-1016A: Pure substance carbamazepine
- (2) HRM-1018A: Pure substance sorbic Acid
- (3) HRM-1019A: Pure substance aspartame
- (4) HRM-3003B: HbA1c in human blood

## Section 2: CIPM MRA Related Activities

### Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology (CCQM)

HSA is a member of the CCQM since 2014.

#### Metrology in Chemistry Meetings

HSA participated in the following meetings in 2017:

- (1) 23<sup>rd</sup> meeting of CCQM and CCQM working groups meeting (PAWG, IAWG and OAWG), BIPM, Paris, France, 24 – 28 Apr 2017.
- (2) CCQM OAWG and PAWG meetings, NRC, Ottawa, Canada, 28 – 29 Sep 2017
- (3) CCQM IAWG meeting, INRIM, Turin, Italy, 26 – 28 Sep 2017.

HSA will be participating in the following meetings:

- (4) 33<sup>rd</sup> APMP GA, TC Workshop, TCQS and TCQM meetings in New Delhi, India, 24 Nov – 1 Dec 2017.

#### Comparisons

HSA participated in the following CCQM/RMO comparisons in 2017:

- (1) CCQM-K141: High polarity analytes in food – enrofloxacin and sulfadiazine in bovine tissue
- (2) SIM.QM-K27: Determination of ethanol in aqueous matrix
- (3) CCQM-K55.d: Characterisation of organic substances for chemical purity: folic acid
- (4) CCQM-K78: High polarity analytes in a multicomponent aqueous solution: mass fraction of amino acids in acidic solution
- (5) CCQM-P150.b: Purity determination of pyributicarb by qNMR method with internal standard method
- (6) APMP.QM-S10: Elements in food supplement
- (7) CCQM-K145/P183: Toxic and essential elements in bovine liver (in progress)
- (8) CCQM-P164: Pilot study on growth hormone determination in serum using isotope dilution mass spectrometry (in progress)

HSA organised the following CCQM comparisons in 2016/17:

- (9) APMP.QM-S8/QM-P28: Determination of mass fraction of benzoic acid, methyl paraben and n-butyl paraben in soy sauce
- (10) CCQM-K109/P148: High polarity analytes in biological matrix: determination of urea and uric acid in human serum (in progress)

- (11) CCQM-K142/P179: Comparison of CRMs and value-assigned quality controls: urea and uric acid in human serum or plasma (in progress)
- (12) CCQM-K139/P173: Elements in human serum (in progress)

### **Promoting Metrology in Chemistry**

HSA co-hosted the World Metrology Day Conference 2017 with NMC, A\*STAR on 19 May 2017.

### **Section 3: International and Regional Cooperation**

HSA and Laboratoire National de Métrologie et d'essais (LNE), France collaborate in the area of clinical metrology.

HSA and National Institute of Metrology (NIM), China signed a Partnership Agreement for a cooperation project on "Research and Application of Measurement Standard and Technical System in Agro-Product Safety". Two Scientists will be attached to NIM.

### **Section 4: Activities relevant to APMP's "Focus Areas"**

*[Members are invited to include here any current activities or planned initiatives relevant to the work of the established focus groups: Medical Metrology, Energy Efficiency, Food Safety, Climate Change, and Clean Water.]*

Food safety is a key focus of the HSA's Chemical Metrology Programme. Of the 12 PT programmes organised by HSA since 2011, ten were related to food safety (including beverages & drinking water). In addition, most of the non-clinical CRMs produced by HSA are related to food safety. Additional PT programmes on food safety and water have also been planned from 2018.

HSA is currently one of the two Deputy Chairs of the APMP Food Safety Focus Group. HSA has also participated in the APEC Workshop on Capacity Building of Measurement Standards and Technologies in Grain Food Safety, Beijing, China in October 2017, organised by NIM, China.

### **Section 5: Future Plans, Priorities and the Role of APMP**

HSA will continue to organise accuracy-based EQA and PT programmes for the local testing laboratories. More CRMs are also being planned.

Healthcare and food safety are two areas of focus for HSA. HSA will continue to expand its capabilities in these areas and provide the relevant metrological services to the local testing laboratories.