ASSAY OF CHINESE MATERIA MEDICA

PROFICIENCY TESTING PROGRAMME

GLHK PT 17-03

FINAL REPORT

30 January 2018

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Government Laboratory of Hong Kong
Proficiency Testing Programme (GLHK PT 17-03)
Assay of Chinese Materia Medica

Summary of Results

1. This proficiency testing programme (GLHK PT 17-03) was organised by the Government Laboratory of Hong Kong (GLHK) with the support from the Hong Kong Council for Testing and Certification (HKCTC). The main objectives of the proficiency testing programme are (i) to assist participating laboratories in demonstrating competence on determination of specific chemical marker(s) and water contents in the five selected Chinese Materia Medicas (CMMs); and (ii) to identify areas for improvement.

2. A total of 14 laboratories registered for the programme (i.e. 12 laboratories in Hong Kong, 1 laboratory in Taiwan and 1 laboratory in Guangdong). Participants were requested to determine the mass fractions (%) of chemical marker(s) and the water content (%) in the five CMMs. Besides, participants were requested to determine the volatile oil content (% v/w) in Acori Tatarinowii Rhizoma (石菖蒲). The number of results returned for each CMM is summarised in Table 1.

Table 1: Number of results returned for each CMM

CMM	Water content	Volatile oil content	Chemical marker(s)
Radix et Rhizoma Glycyrrhizae (甘草)	9	N/A	9
Schisandrae Chinensis Fructus (五味子)	8	N/A	8
Radix Rehmanniae (地黃)	8	N/A	8
Acori Tatarinowii Rhizoma (石菖蒲)	9	8	8
Rhizoma Atractylodis Macrocephalae (白朮)	9	N/A	9

N/A Not applicable

3. The assigned values for the water content, volatile oil and chemical marker(s) were derived as the robust average of the participants' results using robust statistics according to Annex C of ISO 13528:2015. The standard deviation for proficiency assessment (σ_{pt}) for the water content, volatile oil content and chemical marker(s) was calculated as the robust standard deviation of the participants' results according to Annex C of ISO 13528:2015.

4. The z-scores of the participants for the water contents are summarised as follows:

CMM	Number of participants (Percentage)		
	$\lvert z\rvert \leq 2.0$	$2.0 < \lvert z\rvert < 3.0$	$\lvert z\rvert \geq 3.0$
Radix et Rhizoma Glycyrrhizae (甘草)	9 (100%)	0 (0%)	0 (0%)
Schisandrae Chinensis Fructus (五味子)	7 (88%)	1 (12%)	0 (0%)
Radix Rehmanniae (地黃)	8 (100%)	0 (0%)	0 (0%)
Acori Tatarinowii Rhizoma (石菖蒲)	8 (89%)	1 (11%)	0 (0%)
Rhizoma Atractylodis Macrocephalae (白朮)	8 (89%)	0 (0%)	1 (11%)

5. The z-scores of the participants for the volatile oil content are summarised as follows:

CMM	Number of participants (Percentage)		
	$\lvert z\rvert \leq 2.0$	$2.0 < \lvert z\rvert < 3.0$	$\lvert z\rvert \geq 3.0$
Acori Tatarinowii Rhizoma (石菖蒲)	8 (100%)	0 (0%)	0 (0%)

6. The z-scores of the participants for the mass fraction of each chemical marker (as-received basis) are summarised as follows:

Chemical marker (as-received basis)	Number of participants (Percentage)		
	$\lvert z\rvert \leq 2.0$	$2.0 < \lvert z\rvert < 3.0$	$\lvert z\rvert \geq 3.0$
Glycyrrhizic acid	8 (89%)	0 (0%)	1 (11%)
Liquiritin	7 (78%)	0 (0%)	2 (22%)
Schisandrin	8 (100%)	0 (0%)	0 (0%)
Schisandrin B	7 (88%)	1 (12%)	0 (0%)
Catalpol	7 (88%)	1 (12%)	0 (0%)
α-Asarone	6 (86%)	0 (0%)	1 (14%)
Atractylenolide III	9 (100%)	0 (0%)	0 (0%)

7. The z-scores of the participants for the mass fraction of each chemical marker (dry-mass basis) are summarised as follows:

Chemical marker (dry-mass basis)	**Number of participants (Percentage)**		
	$\lvert z\rvert \leq 2.0$	$2.0 < \lvert z\rvert < 3.0$	$\lvert z\rvert \geq 3.0$
Glycyrrhizic acid	8 (89%)	0 (0%)	1 (11%)
Liquiritin	7 (78%)	0 (0%)	2 (22%)
Schisandrin	8 (100%)	0 (0%)	0 (0%)
Schisandrin B	7 (88%)	1 (12%)	0 (0%)
Catalpol	7 (88%)	1 (12%)	0 (0%)
α-Asarone	6 (86%)	0 (0%)	1 (14%)
Atractylenolide III	9 (100%)	0 (0%)	0 (0%)

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