

## RSC Advances

### Electronic Supplementary Material

#### **Polycyclic aromatic hydrocarbons in traditional Chinese medicines: Analytical method based on different medicinal parts, levels, distribution, and sources**

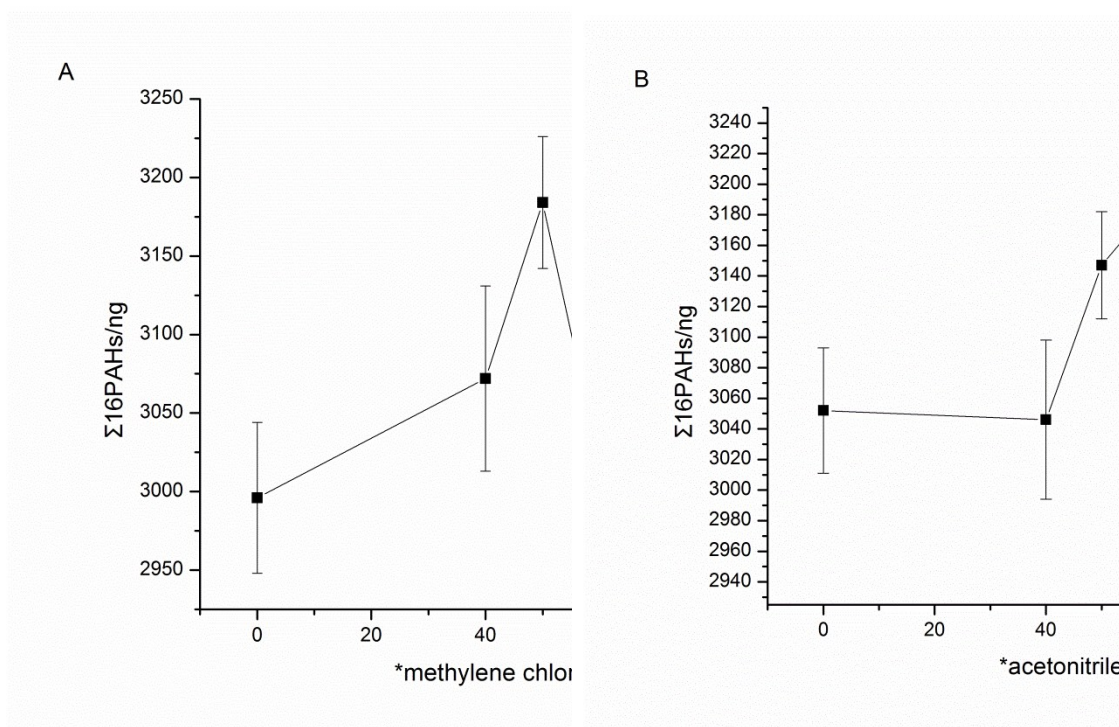
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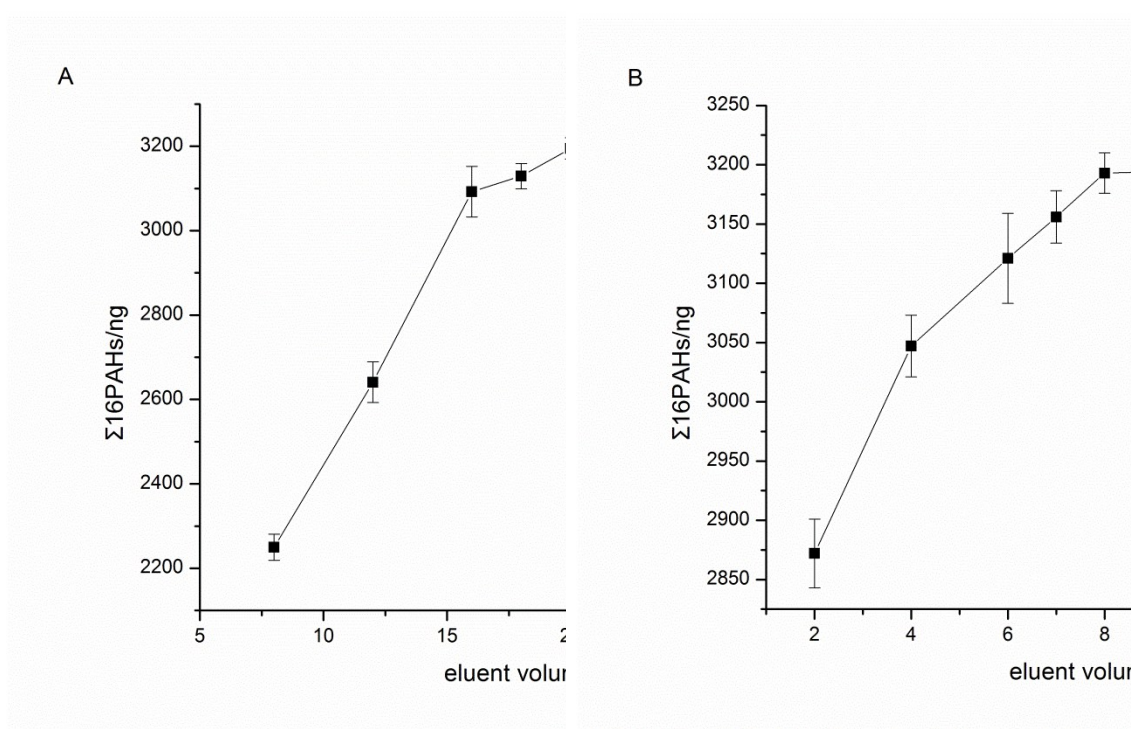
**Fig. S1** Optimization of eluent for (A) silica gel columns and (B) C<sub>18</sub> columns



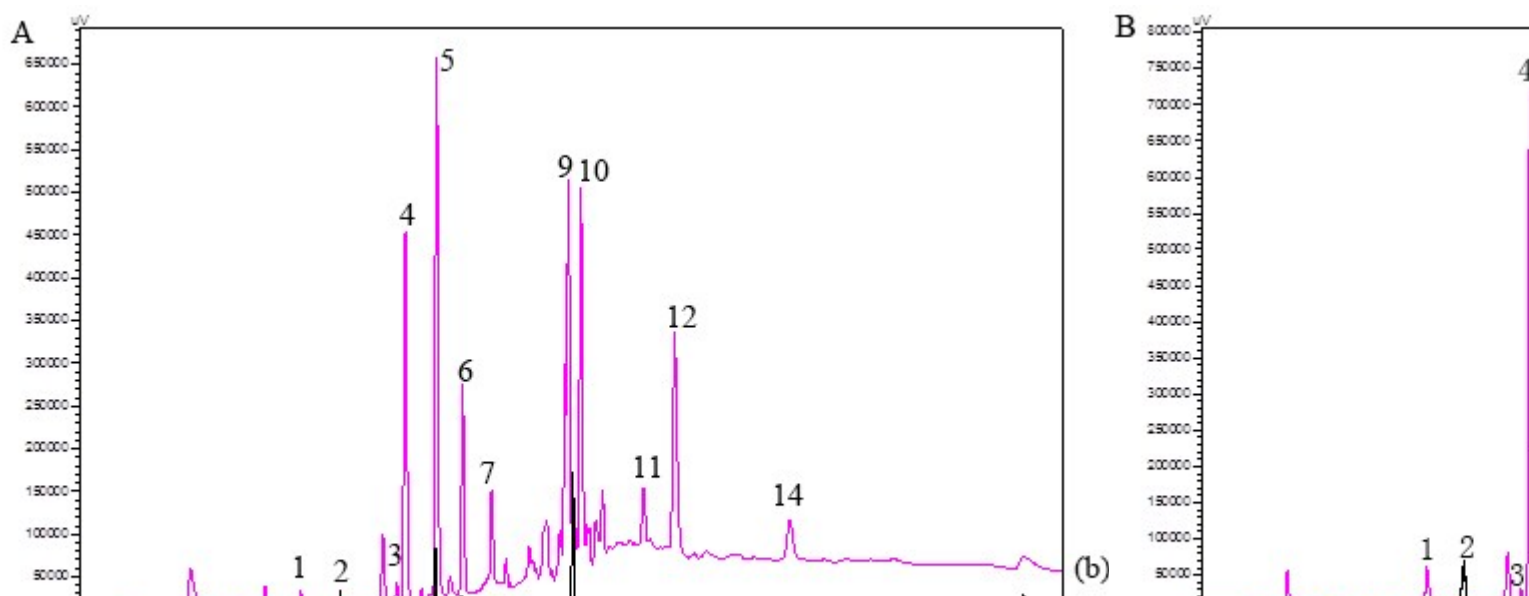
\* methylene chloride ratio =  $V \text{ methylene chloride} / (V \text{ methylene chloride} + V \text{ hexane}) \times 100\%$

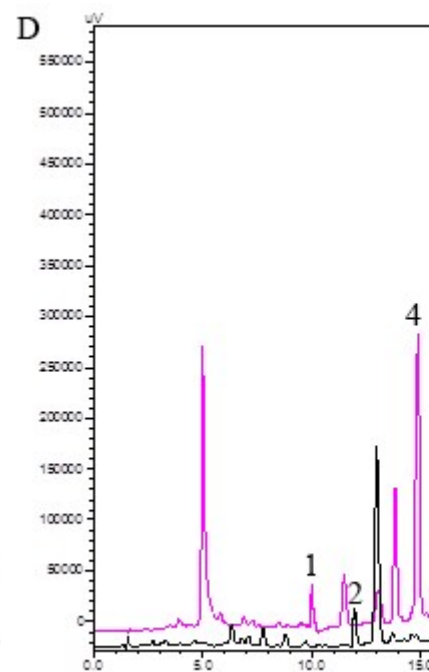
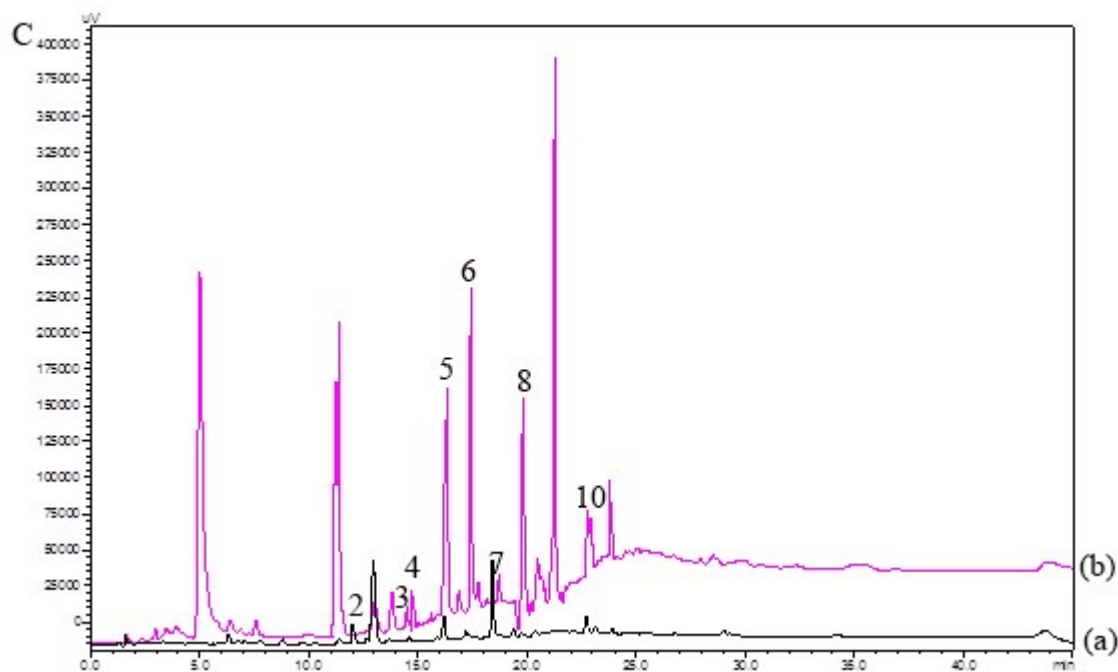
\* acetonitrile ratio =  $V \text{ acetonitrile} / (V \text{ acetonitrile} + V \text{ acetone}) \times 100\%$

**Fig. S2** Optimization of eluent volume for (A) silica gel columns and (B) C<sub>18</sub> columns



**Fig. S3** Chromatogram of the four representative TCMs samples (A. *Rhizoma dioscoreae*, B. *Mulberry leaves*, C. *Fructus mume*, and D. *Fructus cannabis*) monitored by both (a) UV and (b) fluorescence detection (Peaks identification: 1, NA; 2, ACL; 3, AC; 4, FL; 5, PHE; 6, AN; 7, FA; 8, PY; 9, BaA; 10, CHR; 11, BbFA; 12, BkFA; and 14, IP; the rest of PAHs were not detected in these samples)





**Table S1** Optimization of extraction methods for four representative samples

Sample	Ultrasonic	Homogenization	Oscillation
<i>Rhizoma dioscoreae</i> (Roots and Stems)	532.1 (4.8) / 82.4 (5.7)	470.4 (3.8) / 78.7 (2.9)	443.6 (4.8) / 81.6 (5.9)
<i>Mulberry leaves</i> (Leaves and	647.5 (6.2) / 74.5 (6.0)	711.8 (6.9) / 83.3 (7.4)	597.1 (2.5) / 80.8 (8.3)

Flowers)			
<i>Fructus mume</i> (Fruits)	83.9 (3.2) / 84.2 (5.5)	80.5 (1.8) / 82.9 (6.2)	96.9 (2.0) / 83.7 (8.0)
<i>Fructus cannabidis</i> (Seeds)	240.0 (4.7) / 86.5 (6.2)	200.4 (5.2) / 81.8 (4.9)	187.6 (3.6) / 86.2 (7.1)

Value was expressed as  $\Sigma$ 16PAHs ( $\mu\text{g}/\text{kg}$ ) / average recoveries (by spiking 50  $\mu\text{g}/\text{kg}$  for each PAH) of 16 PAHs (%).

In brackets were reported the relative standard deviation (%).

**Table S2** Optimization of extraction solvents for four representative samples

Sample	Hexane	Methylene chloride	Hexane-Methylene chloride (1:1)	Acetonitrile	Acetone	Acetonitrile-Acetone (3:2)
<i>Rhizoma dioscoreae</i> (Roots and Stems)	480.5 (4.8) / 82.2 (3.7)	532.1 (3.8) / 82.4 (3.0)	503.3 (5.7) / 79.8 (5.0)	-/-	-/-	-/-
<i>Mulberry leaves</i> (Leaves and Flowers)	647.4 (6.5) / 82.8 (4.8)	711.8 (4.7) / 83.3 (5.5)	688.4 (3.8) / 84.5 (4.4)	-/-	-/-	-/-
<i>Fructus mume</i> (Fruits)	96.9 (6.0) / 83.7 (3.2)	80.2 (4.3) / 84.1 (7.2)	84.4 (2.2) / 81.6 (6.0)	-/-	-/-	-/-
<i>Fructus cannabidis</i>	-/-	-/-	-/-	212.6 (4.9) /	193.7 (2.7) /	240.0 (4.5) / 86.5 (2.0)

<i>s</i> (Seeds)				79.9 (2.5)	85.5 (1.8)	
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Value was expressed as  $\Sigma$ 16PAHs ( $\mu\text{g}/\text{kg}$ ) / average recoveries (by spiking 50  $\mu\text{g}/\text{kg}$  for each PAH) of 16 PAHs (%).

In brackets were reported the relative standard deviation (%).

**Table S3** Optimization of extraction time for four representative samples

Sample	Ultrasonic			Homogenization			Oscillation		
	10min	20min	30min	1min	3min	5min	30min	60min	90min
<i>Rhizoma dioscoreae</i> (Roots and Stems)	489.2 (2.8) / 79.6 (4.9)	532.1 (3.0) / 82.4 (1.9)	528.4 (2.8) / 81.7 (4.4)	-/-	-/-	-/-	-/-	-/-	-/-
<i>Mulberry leaves</i> (Leaves and Flowers)	-/-	-/-	-/-	676.9 (2.8) / 81.4 (3.1)	711.8 (4.9) / 83.3 (2.8)	709.8 (7.0) / 83.7 (5.2)	-/-	-/-	-/-
<i>Fructus mume</i> (Fruits)	-/-	-/-	-/-	-/-	-/-	-/-	82.4 (6.3) / 79.9 (1.8)	96.9 (4.0) / 83.7 (2.7)	96.7 (3.8) / 81.5 (4.9)
<i>Fructus cannabis</i> (Seeds)	183.6 (6.8) / 82.7 (2.4)	240.0 (5.2) / 86.5 (3.3)	235.7 (6.8) / 84.9 (5.0)	-/-	-/-	-/-	-/-	-/-	-/-

Value was expressed as  $\Sigma$ 16PAHs ( $\mu\text{g}/\text{kg}$ ) / average recoveries (by spiking 50  $\mu\text{g}/\text{kg}$  for each PAH) of 16 PAHs (%).

In brackets were reported the relative standard deviation (%).

**Table S4** Mean recoveries (%) of selected TCMs by spiking 50 µg/kg of each PAH (*n*=3)

Sample category	Name	N A	A C L	A C	FL	P H E	A N	F A	P Y	B a A	C H R	Bb FA	Bk FA	Ba P	IP	DB ahA	Bg hiP
Roots and Stems	<i>Radix liquiritiae</i>	74 .0 (4 .8 )	84 .2 (2. 8)	73 .8 (4. 8)	86 .5 (5. 1)	94 .6 (3. 8)	83 .3 (8. 1)	78 .5 (6. .3 )	81 .5 (6. 3)	84 .7 (2. .7 )	89 .8 (6. 9)	83. 7 (6. 7)	85. 3 (5. 5)	93 .5 (6. 5)	84 .4 (2. 1)	87. 1 (5.3 )	84. 5 (4. 8)
	<i>Radix polygonati officinalis</i>	69 .1 (4 .1 )	87 .3 (1. 1)	79 .4 (9. 0)	78 .1 (3. 9)	94 .8 (2. 1)	80 .5 (3. 0)	89 .3 (4 .9 )	78 .8 (5. 3)	92 .5 (4 .7 )	91 .3 (5. 2)	81. 8 (6. 4)	84. 8 (5. 2)	90 .4 (6. 3)	86 .5 (5. 8)	84. 9 (3.7 )	86. 3 (5. 7)
	<i>Angelica dahurica</i>	72 .8 (7 .9 )	80 .1 (5. 8)	83 .6 (7. 5)	89 .0 (5. 0)	97 .5 (2. 3)	91 .6 (4. 4)	90 .5 (5 .0 )	79 .5 (4. 5)	83 .8 (3 .8 )	78 .5 (3. 7)	90. 3 (8. 4)	87. 0 (6. 3)	95 .2 (5. 9)	93 .5 (4. 1)	93. 3 (6.3 )	79. 4 (5. 3)
	<i>Radix platycodonis</i>	71 .4 (3 .2 )	79 .8 (5. 4)	78 .2 (7. 2)	78 .6 (5. 2)	10 0 (5. 3)	94 .9 (1. 9)	94 .1 (5 .2 )	82 .2 (4. 8)	88 .5 (5 .2 )	91 .6 (3. 0)	85. 4 (8. 0)	86. 5 (7. 0)	93 .8 (6. 0)	90 .2 (4. 4)	92. 8 (6.7 )	85. 3 (4. 2)
	<i>Radix puerariae</i>	78 .5 (3 .0 )	73 .4 (2. 9)	79 .0 (6. 9)	93 .8 (6. 8)	10 7 (5. 4)	86 .5 (2. 3)	93 .4 (3 .9 )	92 .4 (4. 8)	83 .9 (5 .7 )	85 .4 (6. 0)	87. 6 (7. 3)	84. 9 (6. 9)	93 .8 (6. 3)	97 .2 (7. 9)	88. 5 (6.7 )	89. 7 (8. 9)
Leaves and Flowers	<i>Lophatherum gracile</i>	69 .6 (5 .0 )	79 .6 (6. 0)	85 .5 (5. 2)	87 .2 (6. 2)	96 .1 (4. 8)	93 .2 (5. 0)	87 .0 (7 .1 )	93 .7 (5. 8)	91 .0 (6 .2 )	86 .0 (7. 9)	87. 9 (4. 7)	80. 7 (6. 7)	86 .7 (3. 4)	85 .8 (2. 6)	84. 6 (6.5 )	82. 4 (8. 5)

	<i>Mugwort</i>	74 .7 (8 .1 )	75 .0 (6. 2)	87 .9 (5. 5)	90 .4 (6. 1)	96 .3 (4. 0)	87 .5 (4. 8)	93 .1 (7 .7 )	10 7. 8 (6. 9)	94 .5 (6 .1 )	85 .5 (2. 0)	85. 0 (5. 0)	92. 3 (6. 4)	84 .2 (6. 4)	86 .8 (5. 8)	86. 2 (7.0 )	87. 5 (9. 3)
	<i>Folium sennae</i>	71 .8 (7 .6 )	77 .7 (5. 2)	78 .7 (6. 0)	10 3. 3 (5. 0)	88 .7 (8. 6)	10 3. 9 (4. 1)	86 .7 (2 .2 )	89 .8 (3. 8)	92 .5 (5 .7 )	77 .6 (5. 6)	10 0.8 (5. 1)	84. 7 (6. 4)	80 .7 (7. 5)	83 .0 (9. 6)	84. 8 (6.3 )	92. 1 (7. 9)
	<i>Ginkgo leaf</i>	76 .3 (7 .7 )	82 .9 (4. 7)	92 .3 (4. 8)	79 .4 (5. 4)	86 .3 (5. 9)	99 .7 (4. 0)	78 .2 (6 .1 )	93 .6 (1. 2)	91 .7 (5 .5 )	86 .9 (3. 1)	94. 5 (6. 2)	87. 3 (5. 7)	85 .9 (4. 1)	74 .4 (3. 2)	82. 9 (7.0 )	90. 5 (7. 8)
	<i>Flos loniceræ</i>	80 .5 (6 .0 )	83 .5 (5. 0)	80 .0 (3. 2)	85 .9 (6. 6)	96 .0 (4. 0)	98 .6 (2. 3)	88 .5 (5 .1 )	82 .2 (1. 9)	80 .4 (4 .3 )	86 .7 (6. 0)	92. 5 (6. 5)	85. 6 (4. 5)	90 .6 (2. 9)	78 .5 (6. 0)	84. 5 (6.7 )	88. 7 (6. 4)
	<i>Flos chrysanth emi</i>	76 .3 (3 .2 )	78 .8 (2. 7)	77 .3 (3. 0)	97 .2 (7. 9)	83 .3 (2. 1)	99 .5 (4. 7)	91 .1 (6 .3 )	91 .4 (1. 1)	92 .4 (6 .0 )	81 .6 (8. 0)	85. 3 (6. 2)	87. 7 (9. 8)	89 .0 (5. 8)	83 .5 (6. 1)	85. 7 (5.5 )	92. 7 (7. 6)
	<i>Flos sophoræ</i>	79 .2 (2 .0 )	82 .0 (3. 7)	85 .9 (7. 5)	75 .2 (2. 9)	74 .7 (4. 9)	86 .9 (6. 4)	83 .6 (7 .7 )	87 .3 (5. 5)	92 .8 (4 .8 )	88 .1 (1. 6)	93. 1 (4. 9)	89. 0 (5. 0)	10 7. 3 (6. 0)	93 .0 (7. 2)	86. 0 (4.0 )	93. 5 (2. 6)
	<i>Flos citri aurantii</i>	78 .9 (6 .0 )	80 .6 (6. 1)	86 .6 (7. 0)	85 .0 (4. 4)	78 .5 (7. 0)	93 .6 (6. 0)	85 .8 (3 .6 )	88 .9 (3. 0)	85 .1 (5 .1 )	99 .4 (1. 8)	83. 2 (2. 1)	92. 5 (2. 3)	10 0. 4 (6. 2)	95 .3 (6. 4)	79. 7 (4.3 )	88. 7 (6. 7)
	<i>Flos lablab album</i>	74 .8 (6 .5 )	85 .8 (4. 8)	89 .2 (7. 7)	10 6. 5 (4. 2)	84 .0 (6. 5)	86 .9 (9. 0)	93 .0 (3 .7 )	78 .0 (5. 4)	72 .8 (2 .5 )	90 .5 (1. 7)	81. 7 (4. 5)	87. 9 (5. 3)	84 .0 (6. 2)	88 .8 (5. 8)	74. 0 (4.8 )	84. 9 (6. 0)
Frui ts	<i>Fructus crataegi</i>	75 .7 (6 .5 )	82 .5 (5. 9)	80 .4 (7. 2)	92 .9 (2. 5)	94 .7 (3. 8)	82 .1 (6. 1)	86 .6 (4 .6 )	84 .0 (5. 4)	90 .6 (5 .4 )	78 .5 (2. 0)	95. 3 (5. 7)	93. 4 (6. 0)	90 .5 (6. 2)	86 .0 (6. 0)	95. 4 (4.2 )	83. 3 (6. 3)



	)						)		)								
	<i>Fructus chaenomelis lagenariae</i>	74.6 (6.2)	79.6 (5.2)	10.0 (6.8)	84.4 (1.9)	86.9 (3.0)	93.7 (5.8)	87.3 (5.3)	82.0 (5.4)	84.9 (5.1)	93.1 (2.1)	87.8 (6.2)	89.5 (7.9)	87.7 (4.6)	86.7 (4.1)	87.0 (4.2)	76.6 (5.8)
	<i>Citrus chirocarpus</i>	82.5 (4.8)	78.4 (4.8)	10.2 (4.7)	79.6 (3.3)	82.2 (4.6)	84.5 (5.9)	92.9 (5.0)	78.3 (6.0)	82.9 (7.2)	80.5 (6.6)	87.3 (7.3)	90.0 (7.2)	95.0 (3.8)	89.7 (5.9)	89.3 (5.0)	85.0 (5.5)
	<i>Fructus jujubae</i>	78.5 (4.1)	72.5 (4.8)	85.1 (3.9)	90.6 (2.9)	91.7 (8.7)	92.8 (4.0)	86.5 (6.8)	82.9 (4.5)	81.3 (7.1)	92.0 (7.0)	91.0 (6.5)	85.9 (6.4)	86.6 (3.7)	85.3 (6.0)	95.5 (6.1)	84.7 (6.0)
	<i>Fructus rubi</i>	78.4 (3.9)	78.0 (6.0)	91.2 (4.0)	92.8 (5.4)	85.9 (7.0)	10.1 (2.2)	82.6 (6.6)	84.0 (3.6)	87.4 (7.1)	82.8 (7.2)	83.8 (6.0)	84.0 (7.8)	82.6 (6.8)	93.8 (6.2)	82.4 (6.0)	85.1 (7.4)
	<i>Fructus momordicae</i>	77.6 (2.6)	10.3 (6.2)	76.2 (3.3)	94.5 (5.0)	83.0 (7.5)	84.9 (1.5)	83.3 (4.8)	92.4 (3.9)	91.2 (6.2)	93.7 (6.6)	81.6 (6.1)	94.2 (6.7)	86.4 (1.1)	92.2 (6.2)	91.1 (7.9)	89.4 (5.4)
	<i>Fructus schisandra chinensis</i>	75.9 (1.2)	75.0 (6.4)	10.3 (7.0)	91.0 (3.8)	96.3 (6.9)	78.8 (1.9)	77.3 (5.0)	87.5 (2.2)	91.5 (6.2)	86.6 (6.3)	84.1 (5.2)	95.1 (6.2)	92.5 (1.7)	89.8 (4.2)	90.6 (4.2)	84.8 (4.9)
Seeds	<i>Semen pruni</i>	71.4 (4.2)	79.4 (5.8)	87.3 (6.7)	79.3 (5.2)	97.7 (6.8)	78.5 (2.8)	76.4 (5.3)	90.7 (4.8)	83.8 (6.0)	78.6 (6.0)	78.1 (5.0)	10.1 (4.7)	94.6 (3.8)	91.6 (6.1)	87.8 (4.3)	94.0 (2.9)
	<i>Semen armeniacae amarae</i>	70.0 (5.1)	82.9 (6.0)	93.5 (6.3)	82.7 (4.1)	86.4 (7.6)	76.2 (7.0)	84.3 (4.5)	84.3 (3.0)	82.5 (5.5)	87.3 (5.9)	78.8 (3.9)	92.6 (5.8)	87.8 (4.8)	90.9 (4.9)	88.9 (4.3)	10.5 (7.5)
	<i>Semen raphani</i>	73.2 (6.6)	81.3 (6.6)	86.6 (2.4)	84.6 (4.4)	92.7 (7.7)	79.5 (7.7)	78.7 (9.1)	97.4 (1.3)	86.1 (3.4)	90.0 (4.2)	82.1 (2.5)	95.8 (5.5)	99.6 (5.4)	10.1 (4.4)	94.3 (4.3)	10.4 (4.4)

	.6 )	0)	8)	4)	8)	5)	.9 )	5)	.3 )	3)	8)	3)	3)	(8. 7)	)	2)
<i>Sesame seed</i>	72 .5 (7 .4 )	84 .2 (6. 5)	90 .7 (4. 9)	86 .0 (1. 8)	85 .5 (2. 8)	84 .8 (6. 1)	83 .9 (1 .2 )	89 .2 (8. 8)	89 .4 (5 .2 )	84 .3 (6. 9)	94. 2 (5. 5)	87. 3 (6. 0)	94 .7 (3. 8)	96 .5 (8. 1)	87. 3 (5.5 )	91. 5 (5. 2)
<i>Fructus perillae</i>	74 .0 (3 .9 )	78 .4 (6. 0)	88 .1 (6. 0)	70 .4 (9. 8)	95 .1 (4. 7)	92 .7 (6. 7)	92 .2 (1 .1 )	90 .1 (7. 0)	84 .1 (7 .4 )	79 .7 (5. 3)	91. 3 (5. 1)	89. 6 (6. 1)	90 .6 (9. 2)	10 8. 2 (2. 3)	93. 5 (2.6 )	84. 4 (7. 1)
<i>Nutmeg</i>	77 .8 (3 .8 )	78 .6 (5. 9)	96 .0 (6. 2)	88 .5 (1. 6)	93 .9 (5. 4)	10 1. 5 (6. 5)	85 .9 (4 .8 )	95 .8 (6. 9)	92 .7 (3 .7 )	83 .5 (2. 2)	84. 5 (5. 3)	91. 5 (5. 5)	87 .0 (4. 8)	94 .8 (4. 7)	93. 8 (2.2 )	89. 3 (4. 9)
<i>Semen persicae</i>	83 .0 (8 .2 )	80 .2 (5. 4)	89 .2 (6. 2)	99 .0 (3. 5)	92 .8 (6. 0)	88 .1 (5. 0)	91 .7 (2 .2 )	94 .7 (5. 5)	81 .5 (5 .9 )	93 .2 (6. 5)	90. 9 (4. 6)	92. 0 (4. 8)	95 .9 (1. 7)	89 .2 (6. 6)	87. 0 (3.6 )	89. 8 (7. 9)

In brackets were reported the relative standard deviation (%).

**Table S5** PAHs contents in selected TCMs

Sample category	Name	PAH content (mean values ± standard deviation, n=3, µg/kg)																
		NA	ACL	AC	FL	PHE	AN	FA	PY	BaA	CHR	BbFA	BkFA	BaP	IP	DBahA	BghiP	Σ16PAHs <sup>b</sup>
Roots and Stems	<i>Rhizoma dioscoreae</i>	43.5 ± 7.7	62.9 ± 10.1	35.4 ± 5.1	98.5 ± 16.6	145.4 ± 19.2	33.2 ± 3.8	41.5 ± 3.7	nd <sup>a</sup>	26.0 ± 3.3	20.0 ± 1.1	2.5 ± 0.8	3.9 ± 0.1	nd	19.3 ± 2.6	nd	nd	532.1 ± 64.5
	<i>Radix liquiritiae</i>	79.8 ± 12.3	169.8 ± 20.3	121.6 ± 42.8	167.2 ± 37.4	586.4 ± 77.3	134.4 ± 16.7	146.9 ± 27.4	82.2 ± 7.9	9.9 ± 0.5	6.8 ± 0.5	23.6 ± 3.5	10.6 ± 0.6	24.5 ± 4.5	42.7 ± 4.0	2.9 ± 0.1	4.8 ± 0.5	1614.1 ± 147.3
	<i>Radix polygonati officinalis</i>	nd	61.6 ± 9.6	25.7 ± 6.1	74.8 ± 13.3	94.2 ± 12.9	20.3 ± 1.5	57.3 ± 5.5	48.0 ± 4.5	4.8 ± 0.2	4.5 ± 1.0	4.1 ± 0.2	5.5 ± 1.3	nd	9.4 ± 0.5	nd	nd	410.2 ± 44.2
	<i>Angelica dahurica</i>	132.4 ± 16.8	13.3 ± 0.7	18.8 ± 1.5	15.9 ± 3.2	53.5 ± 4.7	22.1 ± 3.5	14.3 ± 1.0	8.8 ± 0.7	2.3 ± 0.7	1.2 ± 0.3	8.2 ± 0.7	nd	32.8 ± 2.8	nd	nd	nd	323.6 ± 29.7
	<i>Radix platycodonis</i>	22.1 ± 2.0	42.5 ± 6.9	19.2 ± 3.0	54.8 ± 7.0	157.6 ± 13.7	87.5 ± 10.6	18.8 ± 1.7	14.6 ± 1.5	14.5 ± 1.1	26.2 ± 2.9	10.6 ± 1.6	4.9 ± 0.2	13.2 ± 3.0	15.0 ± 2.3	nd	nd	501.5 ± 48.8
	<i>Radix puerariae</i>	80.2 ± 15.9	93.5 ± 14.7	120.0 ± 37.7	26.3 ± 3.3	42.9 ± 8.9	nd	13.2 ± 0.8	21.3 ± 3.0	28.8 ± 3.0	24.5 ± 3.0	24.1 ± 2.8	2.7 ± 0.6	31.4 ± 4.8	6.9 ± 0.8	nd	nd	515.8 ± 65.3
Leaves and Flowers	<i>Mulberry leaves</i>	110.2 ± 19.0	119.0 ± 24.4	36.9 ± 4.8	201.6 ± 48.5	145.4 ± 21.8	12.8 ± 2.5	27.8 ± 2.2	41.5 ± 6.7	16.6 ± 1.8	nd	nd	nd	nd	nd	nd	nd	711.8 ± 76.4
	<i>Lophatherum gracile</i>	6.8 ± 1.3	129.4 ± 23.0	128.4 ± 24.7	171.9 ± 20.0	275.3 ± 23.6	20.4 ± 3.0	34.0 ± 3.7	50.3 ± 12.5	1.0 ± 0.4	8.0 ± 0.7	nd	nd	nd	nd	nd	nd	825.5 ± 91.8
	<i>Mugwort</i>	127.1 ± 38.6	115.0 ± 14.8	33.5 ± 4.6	23.6 ± 3.9	322.5 ± 43.1	35.6 ± 4.4	46.5 ± 4.1	2.3 ± 0.4	5.4 ± 0.5	15.6 ± 1.4	nd	nd	nd	5.4 ± 0.8	3.2 ± 0.4	nd	735.7 ± 85.5
	<i>Folium sennae</i>	78.2 ± 16.6	127.9 ± 33.5	138.8 ± 22.3	142.5 ± 30.5	198.3 ± 18.6	19.4 ± 2.7	26.3 ± 3.1	49.7 ± 5.5	5.2 ± 0.3	18.6 ± 0.7	nd	nd	nd	3.8 ± 0.4	nd	nd	808.7 ± 74.6
	<i>Ginkgo leaf</i>	194.6 ± 48.5	nd	142.2 ± 23.9	18.3 ± 3.7	242.5 ± 31.5	22.6 ± 1.8	5.8 ± 1.0	6.0 ± 0.4	2.6 ± 0.1	6.8 ± 0.5	nd	nd	11.9 ± 1.7	nd	nd	nd	653.3 ± 73.3
	<i>Flos lonicerae</i>	nd	42.5 ± 8.8	30.0 ± 5.5	24.8 ± 1.1	66.0 ± 13.4	15.3 ± 1.1	15.3 ± 0.9	22.8 ± 1.8	1.2 ± 0.2	6.7 ± 0.2	14.3 ± 1.8	nd	nd	nd	nd	nd	238.9 ± 18.9
	<i>Flos chrysanthemi</i>	63.4 ± 21.4	48.3 ± 6.3	nd	7.1 ± 0.5	39.7 ± 4.8	3.0 ± 0.2	12.0 ± 0.9	12.9 ± 1.4	2.8 ± 0.1	11.5 ± 1.0	nd	nd	nd	nd	nd	nd	200.7 ± 30.1
	<i>Flos sophorae</i>	48.4 ± 6.9	61.1 ± 10.2	45.4 ± 7.1	25.0 ± 1.7	49.5 ± 6.7	2.7 ± 0.3	10.5 ± 1.3	nd	2.4 ± 0.2	8.0 ± 0.7	nd	nd	nd	nd	nd	nd	253.0 ± 24.6
	<i>Flos citri aurantii</i>	nd	71.3 ± 9.3	nd	2.2 ± 0.4	9.8 ± 0.6	2.3 ± 0.1	1.2 ± 0.1	2.9 ± 0.1	3.7 ± 0.8	9.6 ± 0.8	nd	nd	12.2 ± 2.6	nd	nd	nd	115.2 ± 10.0
	<i>Flos lablab album</i>	95.3 ± 18.8	5.2 ± 1.4	81.5 ± 11.0	49.7 ± 3.9	58.4 ± 7.0	15.5 ± 1.4	9.0 ± 0.6	19.5 ± 1.0	3.2 ± 0.7	8.5 ± 1.1	nd	12.7 ± 1.8	nd	nd	nd	nd	358.5 ± 28.3
Fruits	<i>Fructus mume</i>	nd	3.4 ± 0.6	7.1 ± 0.9	2.0 ± 0.2	43.8 ± 4.1	23.3 ± 1.0	2.9 ± 0.2	12.4 ± 0.9	nd	2.0 ± 0.1	nd	nd	nd	nd	nd	nd	96.9 ± 6.6
	<i>Fructus crataegi</i>	56.4 ± 15.6	2.5 ± 0.3	nd	14.7 ± 1.2	24.0 ± 1.8	8.2 ± 0.2	6.2 ± 0.5	15.0 ± 1.3	7.6 ± 0.6	18.3 ± 2.2	nd	nd	10.3 ± 1.9	nd	nd	nd	163.2 ± 20.2
	<i>Fructus chaenomelis lagenariae</i>	4.2 ± 1.3	nd	9.6 ± 2.0	5.0 ± 0.3	14.8 ± 2.2	3.8 ± 0.6	6.7 ± 0.4	17.3 ± 1.4	4.8 ± 0.6	13.9 ± 1.6	nd	1.5 ± 0.1	nd	nd	nd	nd	81.6 ± 5.8
	<i>Citrus chirocarpus</i>	126.1 ± 27.5	18.4 ± 2.0	12.3 ± 0.7	19.0 ± 3.8	47.3 ± 4.0	12.4 ± 0.5	9.9 ± 1.3	10.8 ± 0.8	1.3 ± 0.3	4.1 ± 0.2	nd	nd	nd	nd	nd	nd	261.6 ± 31.0
	<i>Fructus jujubae</i>	10.3 ± 2.7	2.9 ± 0.5	5.5 ± 0.3	10.4 ± 1.1	11.5 ± 2.5	4.9 ± 0.2	6.5 ± 0.3	18.2 ± 1.2	5.4 ± 0.4	2.3 ± 0.2	nd	nd	14.6 ± 3.4	nd	nd	nd	92.5 ± 3.6

	<i>Fructus rubi</i>	1.5 ± 0.4	nd	nd	2.3 ± 0.6	4.6 ± 0.7	1.1 ± 0.1	nd	5.3 ± 0.4	nd	2.0 ± 0.5	2.7 ± 0.3	nd	nd	nd	nd	nd	19.5 ± 0.9
	<i>Fructus momordicae</i>	7.7 ± 1.2	3.2 ± 0.4	6.2 ± 0.3	4.5 ± 0.6	18.3 ± 1.3	8.9 ± 0.9	11.4 ± 1.7	12.3 ± 1.6	3.2 ± 0.2	9.3 ± 1.9	5.2 ± 0.2	nd	nd	nd	nd	nd	90.2 ± 4.7
	<i>Fructus schisandra chinensis</i>	154.9 ± 29.7	nd	137.3 ± 33.1	33.9 ± 5.2	34.0 ± 4.2	4.6 ± 0.8	12.1 ± 1.3	24.4 ± 3.3	1.6 ± 0.2	4.9 ± 0.8	nd	nd	nd	nd	nd	nd	407.7 ± 36.2
Seeds	<i>Fructus cannabis</i>	73.0 ± 15.5	33.5 ± 5.8	nd	64.2 ± 11.0	27.5 ± 1.5	22.3 ± 3.5	4.2 ± 0.9	5.8 ± 0.8	2.3 ± 0.1	7.2 ± 0.6	nd	nd	nd	nd	nd	nd	240.0 ± 19.4
	<i>Semen pruni</i>	51.6 ± 12.0	31.1 ± 4.7	12.4 ± 1.1	35.8 ± 2.7	63.4 ± 5.4	17.5 ± 1.1	6.3 ± 0.3	10.4 ± 1.8	1.3 ± 0.2	5.0 ± 0.8	nd	nd	nd	nd	nd	nd	234.8 ± 15.5
	<i>Semen armeniaca amarae</i>	67.3 ± 14.2	82.9 ± 13.8	nd	nd	48.5 ± 6.0	16.8 ± 1.5	14.1 ± 0.9	23.5 ± 2.7	5.6 ± 0.8	15.8 ± 0.9	4.7 ± 0.8	nd	nd	nd	nd	nd	279.2 ± 18.1
	<i>Semen raphani</i>	nd	11.3 ± 2.2	6.7 ± 0.5	6.4 ± 1.1	22.9 ± 3.0	nd	8.3 ± 0.8	17.4 ± 0.9	2.9 ± 0.2	11.0 ± 1.0	nd	nd	nd	10.1 ± 1.5	nd	nd	97.0 ± 7.4
	<i>Sesame seed</i>	56.2 ± 10.4	54.1 ± 9.1	10.0 ± 0.7	88.3 ± 15.6	68.3 ± 7.4	14.4 ± 1.3	12.6 ± 1.1	21.1 ± 1.8	3.5 ± 0.1	nd	nd	nd	nd	nd	nd	nd	328.5 ± 21.7
	<i>Fructus perillae</i>	74.1 ± 12.3	28.5 ± 1.7	6.9 ± 1.4	70.0 ± 8.5	31.8 ± 3.8	12.1 ± 1.7	11.8 ± 0.7	22.5 ± 3.4	5.1 ± 0.4	12.4 ± 1.5	nd	nd	nd	nd	nd	nd	275.2 ± 18.3
	<i>Nutmeg</i>	nd	68.5 ± 16.0	5.0 ± 0.1	28.3 ± 1.6	54.9 ± 4.9	10.1 ± 2.1	14.5 ± 1.2	15.3 ± 0.8	7.8 ± 0.9	18.1 ± 2.0	nd	nd	nd	nd	nd	nd	222.5 ± 20.5
	<i>Semen persicae</i>	53.5 ± 8.1	38.6 ± 4.4	19.4 ± 3.2	94.0 ± 7.9	85.3 ± 10.7	6.2 ± 0.8	21.6 ± 3.0	42.4 ± 4.4	2.3 ± 0.2	4.8 ± 0.6	nd	nd	nd	nd	nd	nd	368.1 ± 15.8

<sup>a</sup> Not detected.

<sup>b</sup> Total content of all 16 PAHs.