

Table 9

List of CRS in Korean Pharmacopoeia

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Compound	Purity (%)	IR (cm ⁻¹)	UV λ _{max} nm (E1% 1cm)	mp	HPLC	TLC R _f value (1:Dev. solv., 2:Detect)	¹ H-NMR	¹³ C-NMR	Available from	Reference Standard for	Applied to	References
Baicalin	>95	3385, 1728, 1662, 1611, 1575	277.2	210.4	ZORB Eclipse XDB-C8 (150 X 4.6 mm), 275 nm, 1% Acetic acid: MeOH: AcCN (60:30:10)	0.17 [1:CHCl ₃ /MeOH/H ₂ O (10:5:1), 2: p-anisaldehyde-H ₂ SO ₄ , 105°C, 5 min]	5.08 (1H, d, J = 7.1 Hz, H-1'), 6.99 (1H, s, H-3), 7.04 (1H, s, H-8), 7.63 (3H, m, H-3', 4', 5'), 8.07 (2H, m, H-2', 6'), 12.5 (1H, br s, -OH)	71.6 (C-4"), 73.0 (C-2"), 75.4 (C-5"), 75.7 (C-3"), 94.3 (C-8), 100.4 (C-1"), 105.1 (C-3), 106.6 (C-10), 126.8 (C-2'), 126.8 (C-6'), 129.7 (C-3'), 129.7 (C-5'), 130.8 (C-1'), 131.1 (C-6), 132.7 (C-4'), 146.9 (C-5), 149.8 (C-9), 151.5 (C-7), 164.4 (C-2), 170.3 (C-6"), 182.9 (C-4)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	SCUTELLARIAE RADIX, SCUTELLARIAE RADIX PULVERATA	<i>J. Chinese Chem. Sci.</i> , 47 , 247-251 (2000)
Paeoniflorin	>95	3414, 1713, 1280, 1076	231.6		YMC pack ODS-A C18 (10 mm x 250 mm), 220 nm, AcCN/ H ₂ O (3:7)	0.4 [1:CHCl ₃ /MeOH (5:1), 2: p-anisaldehyde-H ₂ SO ₄ , 105°C, 5 min]	1.43 (3H, s, H-10), 1.90 (1H, d, J = 12.4 Hz, H-3), 2.04 (1H, d, J = 11.0 Hz, H-6), 2.28 (1H, d, J = 12.4 Hz, H-3), 2.59 (1H, dd, J = 11.0, 6.8 Hz, H-6), 2.66 (1H, d, J = 6.8 Hz, H-5), 4.60 (1H, d, J = 7.6 Hz, H-1'), 4.81 (2H, s, H-8), 5.49 (1H, s, H-9) 7.57 (2H, t, J = 7.3 Hz, H-3", 5"), 7.70 (1H, t, J = 7.3 Hz, H-4"), 8.13 (2H, d, J = 8.5 Hz, H-2", 6")	19.6 (C-10), 23.4 (C-6), 44.0 (C-5), 44.5 (C-3), 61.7 (C-8), 62.9 (C-6'), 71.7 (C-4'), 72.2 (C-7), 75.0 (C-2'), 77.9 (C-5), 78.0 (C-3'), 87.2 (C-2), 89.3 (C-1), 100.2 (C-1'), 102.3 (C-9), 106.4 (C-4), 129.6 (C-3", 5"), 130.7 (C-2".6"), 131.2 (C-1"), 134.4 (C-4"), 168.0 (C-7")	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	Paeoniae Radix	<i>YAKUHIN KENKYU</i> , 29 (10), 725-729 (1998)
Berberine chloride	>95	3400, 1600, 1250	420, 345, 263, 228		TSK-gel ODS-80Ts (4.6 mm x 150 mm), Column temp 40°C, 345 nm	0.5 [1:CHCl ₃ /MeOH (5:1), 2: p-anisaldehyde-H ₂ SO ₄ , 105°C, 5 min]	3.24 (H-5), 4.07 (10-OMe), 4.19 (9-OMe), 4.88 (H-6), 6.07 (-OCH ₂ O-), 6.83 (H-4), 7.39 (H-1), 7.88 (H-12), 7.90 (H-11), 8.34 (H-13), 9.54 (H-8)	27.2 (C-5), 56.3 (C-6), 56.7 (10-OMe), 61.9 (9-OMe), 102.3 (-OCH ₂ O-), 105.1 (C-1), 108.5 (C-4), 119.8 (C-1a), 120.2 (C-13), 121.8 (C-8a), 123.1 (C-12), 126.9 (C-11), 129.8 (C-4a), 133.5 (C-12a), 138.2 (C-13a), 144.1 (C-8), 144.1 (C-9), 148.6 (C-2), 150.5 (C-10), 151 (C-3)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (Assay)	PHELLODENDRI Bark, COPTIDIS RHIZOMA	<i>Bull. Natl. Inst. Health Sc.</i> , 119 , 97-100 (2001); <i>Phytochemistry</i> , 28 , 2833-2839 (1989)

Loganin	>95	3431, 1711, 1074	220-222	220-222	YMC pack ODS-A C18 (10 mm x 250 mm), 254 nm, AcCN/H ₂ O (3:7)	0.17 [1:CHCl ₃ /MeOH (5:1), 2: p-anisaldehyde-H ₂ SO ₄ , 105°C, 5min]	1.07 (3H, d, J = 6.8 Hz, H-10), 1.62 (1H, m, H-6a), 1.87 (1H, m, H-8), 2.03 (1H, m, H-6b), 2.23 (1H, m, H-9), 3.09 (1H, m, H-5), 3.17-3.39 (4H, m, H-2', 3', 4', 5'), 3.66 (1H, dd, J = 11.8, 6.0 Hz, H-6'a), 3.89 (1H, dd, J = 11.8, 5.2 Hz, H-6'b), 4.04 (1H, t, J = 4.4 Hz, H-7), 4.64 (1H, d, J = 8.0 Hz, H-1'), 5.26 (1H, d, J = 4.4 Hz, H-1'), 7.38 (1H, s, H-3)	13.4 (C-10), 32.2 (C-5), 42.2 (C-8), 42.6 (C-6), 46.6 (C-9), 62.1 (C-6'), 71.6 (C-4'), 74.7 (C-7), 75.1 (C-2'), 78.0 (C-5'), 78.3 (C-3'), 97.7 (C-1), 99.9 (C-1'), 114.1 (C-4), 152.1 (C-3), 169.6 (C-11)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	CORNI FRUCTUS	<i>Fitoterapia</i> 71 , 420-424 (2000)
Hesperidin	>95	3432, 1646, 1096	272-274	336, 284, 204	YMC pack ODS-A C18 (10 mm x 250 mm), 280 nm, AcCN/H ₂ O (2:8)	0.45 [1:CHCl ₃ /MeOH/H ₂ O (10:5:1), 2: p-anisaldehyde-H ₂ SO ₄ , 105°C, 5 min]	1.09 (1H, d, J = 6 Hz, H-6''), 3.77 (3H, s, -OMe), 4.52 (1H, brs, H-1''), 5.51 (1H, dd, J = 9.3 Hz, H-2), 5.51 (1H, d, J = 9 Hz, H-1''), 6.13 (2H, brs, H-6, 8), 6.92 (3H, brs, H-2', 5', 6'), 11.86 (1H, brs, -OH)	17.9 (C-6''), 55.5 (OMe), 65.7 (C-6''), 68.0 (C-5''), 69.3 (C-3''), 69.9 (C-2''), 70.3 (C-4''), 71.7 (C-4''), 72.6 (C-2''), 75.2 (C-5''), 75.7 (C-3''), 78.1 (C-2), 95.4 (C-8), 96.1 (C-6), 99.2 (C-1''), 100.2 (C-1''), 103.0 (C-10), 111.7 (C-5'), 113.6 (C-2'), 117.9 (C-6'), 130.4 (C-1'), 145.8 (C-3'), 147.6 (C-4'), 162.0 (C-9), 162.3 (C-5), 164.6 (C-7), 196.4 (C-4)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	AURANTII NOBILIS PERICARPIURN	<i>Phytochemistry</i> , 37 , 1463-1466 (1994)
Puerarin	>95	3428, 1630, 1515, 1445, 1396, 1257, 1057, 889, 835, 631	187	249, 301	Curosil PFP (250 X 4.6 mm), 254 nm, AcCN : H ₂ O (15:85)	0.50 [1: CHCl ₃ /MeOH/H ₂ O (6:4:1), 2: UV (254nm), p-anisaldehyde-H ₂ SO ₄ , 105°C, 10min]	4.81 (1H, 6.80 (2H), 6.99 (1H), 7.40 (2H), 7.94 (1H), 8.34 (1H)	70.6 (CH ₂), 70.8 (CH), 73.3 (CH), 73.5 (CH), 78.8 (CH), 81.9 (CH), 112.7 (C), 115.0 (CH), 115.2 (CH), 115.4 (CH), 116.7 (C), 122.6 (C), 123.1 (C), 126.3 (CH), 130.1 (CH), 130.1 (CH), 144.8 (CH), 144.8 (CH), 152.7 (C), 157.2 (C), 161.2 (C), 175.0 (C)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	Pueraria Root	<i>Tetrahedron</i> , 56 , 8915-8920 (2000)
Magnolol	>95	3267, 2901, 1639, 1497, 1417, 1226, 1114, 994, 913, 821, 789, 643	101.5-102	210, 371	Curosil PFP (250 X4.6 mm), 220 nm, AcCN : H ₂ O (50:50)	0.30 [1: Hexane/EtOAc (5:1), 2: UV (254nm), p-anisaldehyde-H ₂ SO ₄ , 105°C, 10min]	3.35 (4H), 5.07 (2H), 5.11 (2H), 5.65(2H), 5.95 (2H), 6.93 (2H), 7.08 (2H), 7.12 (2H)	39.3 (CH ₂), 115.8 (CH ₂), 116.6 (CH), 123.7 (C), 129.9 (CH), 131.1 (CH), 133.2 (C), 137.5 (CH), 151.1 (C)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	Magnolia Bark	<i>Chem. Pharm. Bull.</i> , 39 , 2024-2036 (1991)

Schizandrin	>95	3525, 2936, 1594, 1490, 1457, 1401, 1321, 1274, 1237, 1197, 1161, 1105, 1010	217, 250	128-129	Curosil PFP (250 X 4.6 mm), 220 nm, AcCN : H ₂ O (50:50)	0.23 [1: n-Hexane/EtOAc (5:1), 2: UV (254 nm), p-anisaldehyde-H ₂ SO ₄ , 105°C, 10min]	0.81 (3H), 1.25 (3H), 1.86 (2H), 2.34 (1H), 2.35 (1H), 2.62 (1H), 2.65 (1H), 3.56 (3H), 3.58 (3H), 6.53 (1H), 6.60 (1H)	15.8 (CH ₃), 29.8 (CH ₃), 34.1 (CH ₂), 40.7 (CH ₂), 41.7 (CH), 55.8 (CH ₃), 55.9 (CH ₃), 60.5 (CH ₃), 60.6 (CH ₃), 60.9 (CH ₃), 71.7 (C), 109.8 (CH), 110.3 (CH), 122.6 (C), 124.1 (C), 131.7 (C), 131.8 (C), 140.1 (C), 140.7 (C), 151.5 (C), 151.8 (C), 152.0 (C), 152.3 (C)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	Scizandra Fruit	Phytochemistry, 27 , 569-573 (1988)
Ephedrine HCl	>95	3325, 2971, 1754, 1589, 1452, 1391, 1237, 1113, 1047, 989, 751, 700	202	218	Curosil PFP (250 X 4.6 mm), 220 nm, 10 mM ammonium acetate : AcCN (50:50)	0.31 [1: CHCl ₃ /MeOH/H ₂ O (6.5:1), 2: UV (365 nm)]	1.06 (3H), 2.77 (3H), 3.43 (1H), 5.38 (1H), 7.11-7.67 (5H)	10.8 (CH ₃), 32.8 (CH ₃), 62.2 (CH), 72.5 (CH), 127.8 (CH), 129.7 (CH), 130.3 (CH), 142.2 (C)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	Ephedra Herb	Planta Med., 54 , 69-70 (1988)
Amygdalin	>95	3409, 2890, 1629, 1454, 1363, 1067, 1027, 891, 761, 702, 618, 405	207	214	Intersil ODS-3 (150 X 4.6 mm), 254 nm, AcCN : H ₂ O (15:85)	0.73 [1: CHCl ₃ /MeOH/H ₂ O (6:4:1), 2: UV (254 nm), p-anisaldehyde-H ₂ SO ₄ , 105°C, 10min]	3.15-4.06 (12H), 4.42 (1H), 4.42 (1H), 5.72 (1H), 7.34 (3H), 7.41 (2H)	61.6 (CH ₂), 69.1 (CH ₂), 69.6 (CH), 70.1 (CH), 70.5 (CH), 73.7 (CH), 74.1 (CH), 76.3 (CH), 76.3 (CH), 76.5 (CH), 76.8 (CH), 102.5 (CH), 103.7 (CH), 119.4 (C), 128.4 (CH), 128.4 (CH), 130.2 (CH), 130.2 (CH), 131.2 (CH), 133.5 (C)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	Apricot Kernel	Phytochemistry, 29 , 1179-1181 (1990)
tanshinone IIA	>95			215-216	ODS column (I.D. 4.6 mm x 20 cm), 268 nm, Column temp 20°C, CH ₃ CN/H ₂ O (75:25), flow rate 1.0 ml/min	0.5 [1: Hexane/EtOAc (4:1), 2: UV (254 nm), dil. H ₂ SO ₄ , 105°C, 10 min]	7.63, 7.54 (2H), 7.22 (1H), 3.18 (2H), 2.25 (3H), 1.18-1.63 (4H), 1.31 (6H)	29.9 (C-1), 19.1 (C-2), 37.8 (C-3), 34.6 (C-4), 144.4 (C-5), 133.4 (C-6), 120.2 (C-7), 127.4 (C-8), 126.5 (C-9), 150.1 (C-10), 183.6 (C-11), 175.7 (C-12), 119.9 (C-13), 161.7 (C-14), 141.3 (C-15), 121.1 (C-16), 8.8 (C-17), 31.8 (C-18), 31.8 (C-19)	Reference Standard Prepared by KFDA	TLC (identification)	SALVIAE MULTIORRHIZAE RADIX	Kor. J. Pharmacogy, 30 (2), 158-162 (1999)
Evodiamine	>95		268, 282, 291	278	ODS column (4.6 mm x 15 cm), 254 nm, Column temp 25°C, CH ₃ CN/H ₂ O (1:1), flow rate 1.0 ml/min	0.45 [1: Hexane/EtOAc (3:2), 2: UV (254nm), dil. dragendorff, 105°C, 10 min]			Reference Standard Prepared by KFDA	TLC (identification)	EVODIAE FRUCTUS	

