

Volumetric Properties, Viscosity and Refractive Indices of Different Naringenin Solutions at Several Temperatures

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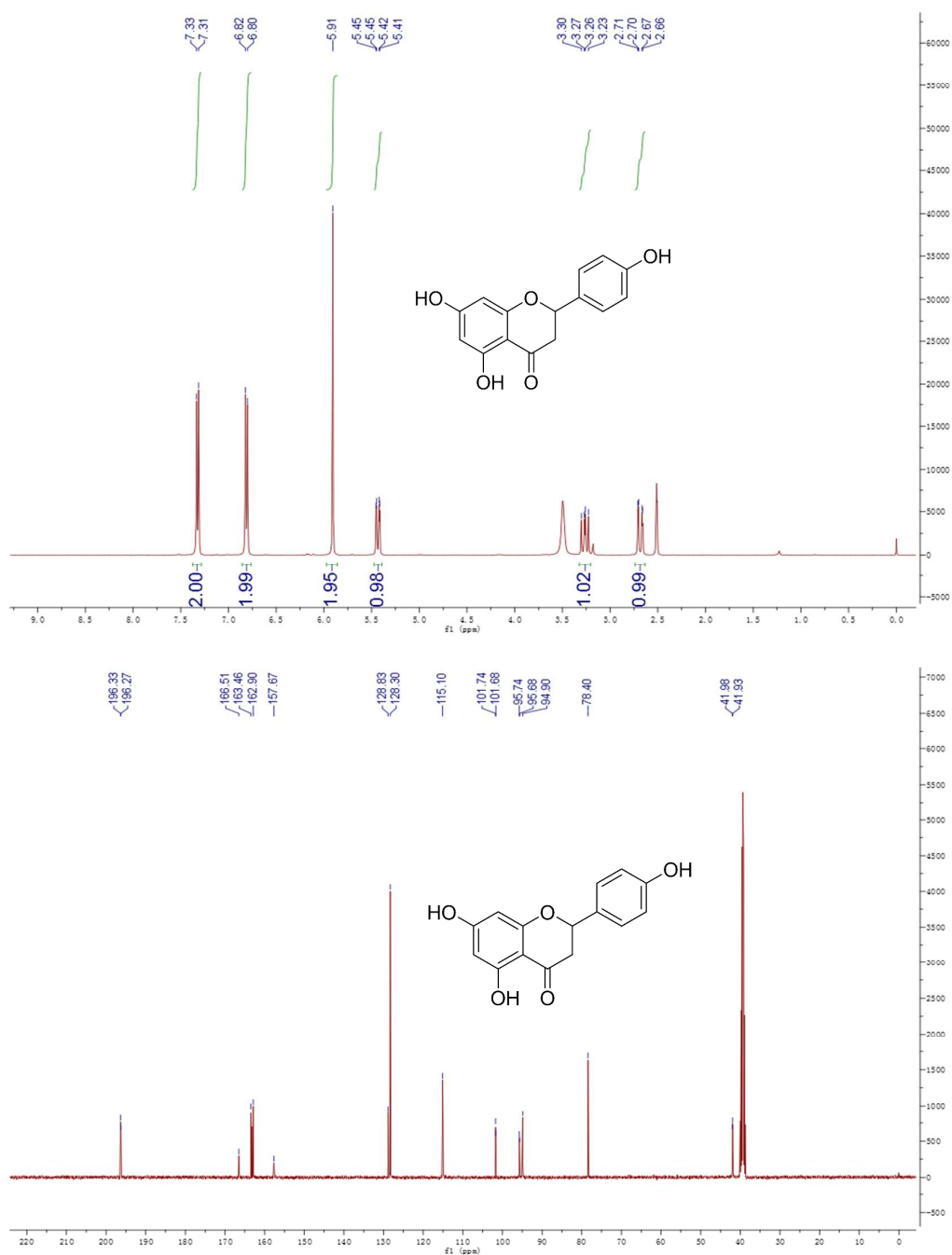
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Table S1. The Weight of the solute and solvent in the studied system

m_{solvent} mol·kg ⁻¹	W_{solvent} g	W_{water} g	$m_{\text{naringenin}}$ mol·kg ⁻¹	$W_{\text{naringeni}}$ ng	m_{solvent} mol·kg ⁻¹	W_{solvent} g	W_{water} g	$m_{\text{naringenin}}$ mol·kg ⁻¹	$W_{\text{naringenin}}$ g
ethanol+water+naringenin					1-prpanol+water+naringenin				
24.00	55.25	50.00	0.00	0.00	24.00	72.12	50.00	0.00	0.00
			0.01	0.29				0.01	0.33
			0.02	0.57				0.02	0.66
			0.03	0.86				0.03	1.00
			0.04	1.15				0.04	1.33
			0.05	1.43				0.05	1.66
28.00	64.46	50.00	0.00	0.00	28.00	84.14	50.00	0.00	0.00
			0.01	0.31				0.01	0.37
			0.02	0.62				0.02	0.73
			0.03	0.93				0.03	1.10
			0.04	1.25				0.04	1.46
			0.05	1.56				0.05	1.83
32.00	73.66	50.00	0.00	0.00	32.00	96.16	50.00	0.00	0.00
			0.01	0.34				0.01	0.40
			0.02	0.67				0.02	0.80
			0.03	1.01				0.03	1.19
			0.04	1.35				0.04	1.59
			0.05	1.68				0.05	1.99
36.00	82.87	50.00	0.00	0.00	36.00	108.18	50.00	0.00	0.00
			0.01	0.36				0.01	0.43
			0.02	0.72				0.02	0.86
			0.03	1.09				0.03	1.29
			0.04	1.45				0.04	1.72
			0.05	1.81				0.05	2.15
40.00	92.08	50.00	0.00	0.00	40.00	120.20	50.00	0.00	0.00
			0.01	0.39				0.01	0.46
			0.02	0.77				0.02	0.93
			0.03	1.16				0.03	1.39
			0.04	1.55				0.04	1.85
			0.05	1.93				0.05	2.32



¹H NMR (400 MHz, DMSO) δ 7.32 (d, *J* = 8.0 Hz, 2H), 6.81 (d, *J* = 8.0 Hz, 2H), 5.91 (s, 2H), 5.43 (dd, *J* = 12.0, 3.0 Hz, 1H), 3.26 (dd, *J* = 17.0, 12.0 Hz, 1H), 2.68 (dd, *J* = 17.0, 3.0 Hz, 1H); ¹³C NMR (100 MHz, DMSO) δ 196.3 (*J* = 3.0 Hz), 166.5, 163.4, 162.9, 157.7, 128.8, 128.3, 115.1, 101.7 (*J* = 3.0 Hz), 95.7 (*J* = 3.0 Hz), 94.9, 78.4, 42.0 (*J* = 3.0 Hz).

Figure S1: ¹H NMR and ¹³C NMR spectra of naringenin.

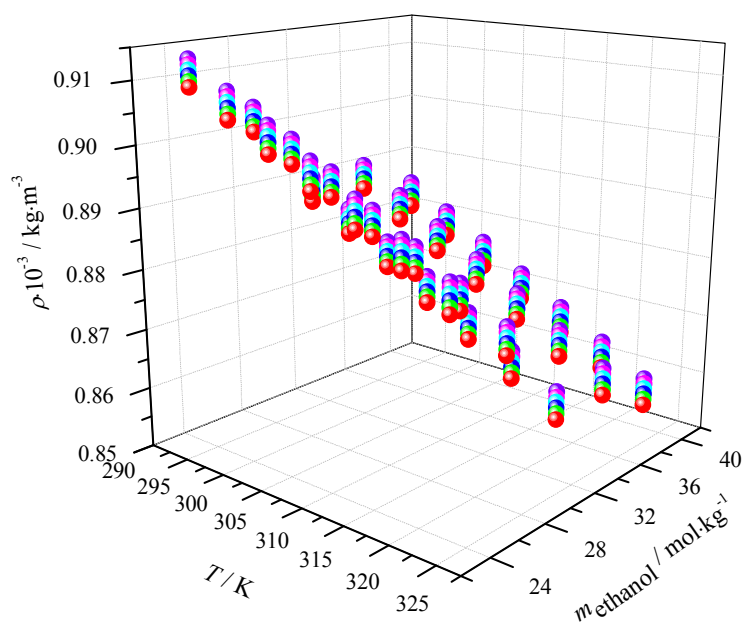


Figure S2: Densities of naringenin in aqueous ethanol solutions. $\bullet$, $m_{\text{Naringenin}}=0.00 \text{ mol} \cdot \text{kg}^{-1}$; $\bullet$, $m_{\text{Naringenin}}=0.01 \text{ mol} \cdot \text{kg}^{-1}$; $\bullet$, $m_{\text{Naringenin}}=0.02 \text{ mol} \cdot \text{kg}^{-1}$; $\bullet$, $m_{\text{Naringenin}}=0.03 \text{ mol} \cdot \text{kg}^{-1}$; $\bullet$, $m_{\text{Naringenin}}=0.04 \text{ mol} \cdot \text{kg}^{-1}$; $\bullet$, $m_{\text{Naringenin}}=0.05 \text{ mol} \cdot \text{kg}^{-1}$.

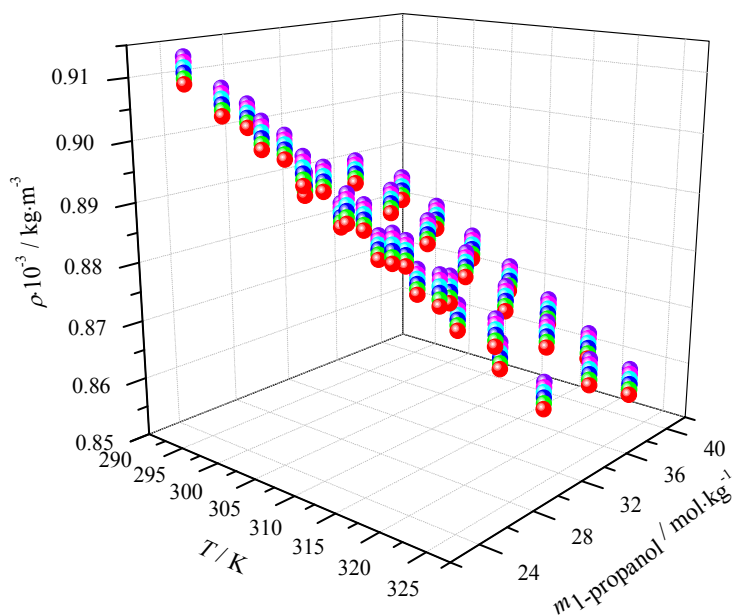


Figure S3: Densities of naringenin in aqueous 1-propanol solutions. $\bullet$, $m_{\text{Naringenin}}=0.00 \text{ mol} \cdot \text{kg}^{-1}$; $\bullet$, $m_{\text{Naringenin}}=0.01 \text{ mol} \cdot \text{kg}^{-1}$; $\bullet$, $m_{\text{Naringenin}}=0.02 \text{ mol} \cdot \text{kg}^{-1}$; $\bullet$, $m_{\text{Naringenin}}=0.03 \text{ mol} \cdot \text{kg}^{-1}$; $\bullet$, $m_{\text{Naringenin}}=0.04 \text{ mol} \cdot \text{kg}^{-1}$; $\bullet$, $m_{\text{Naringenin}}=0.05 \text{ mol} \cdot \text{kg}^{-1}$.

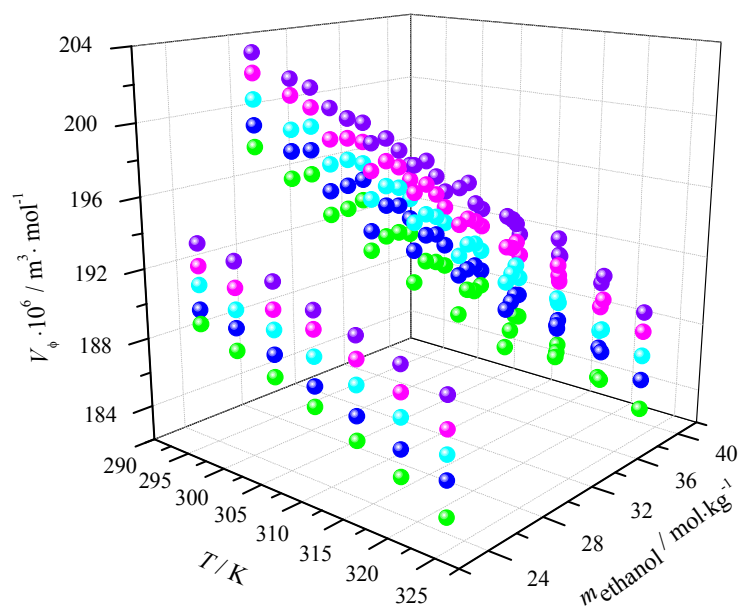


Figure S4: Apparent molar volume (V_ϕ) of naringenin in aqueous ethanol solutions. ●, $m_{\text{Naringenin}}=0.01 \text{ mol}\cdot\text{kg}^{-1}$; ●, $m_{\text{Naringenin}}=0.02 \text{ mol}\cdot\text{kg}^{-1}$; ●, $m_{\text{Naringenin}}=0.03 \text{ mol}\cdot\text{kg}^{-1}$; ●, $m_{\text{Naringenin}}=0.04 \text{ mol}\cdot\text{kg}^{-1}$; ●, $m_{\text{Naringenin}}=0.05 \text{ mol}\cdot\text{kg}^{-1}$.

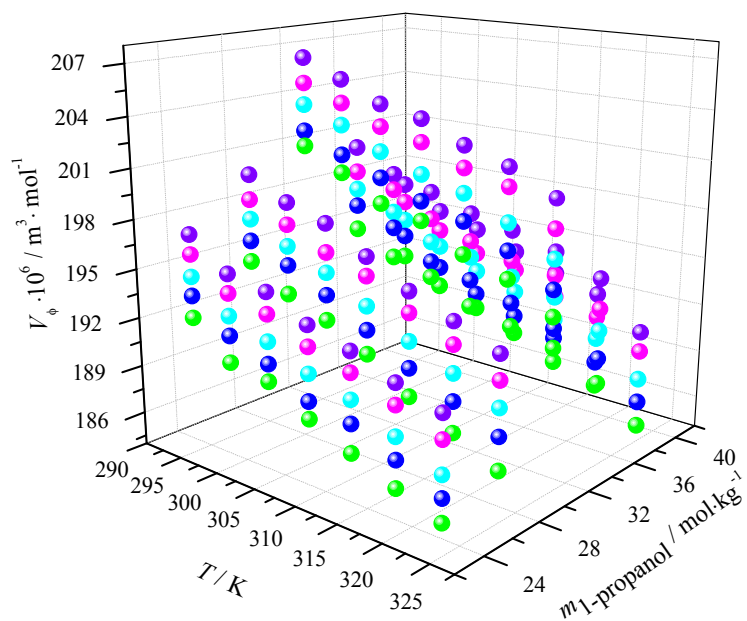


Figure S5: Apparent molar volume (V_ϕ) of naringenin in aqueous 1-propanol solutions. ●, $m_{\text{Naringenin}}=0.01 \text{ mol}\cdot\text{kg}^{-1}$; ●, $m_{\text{Naringenin}}=0.02 \text{ mol}\cdot\text{kg}^{-1}$; ●, $m_{\text{Naringenin}}=0.03 \text{ mol}\cdot\text{kg}^{-1}$; ●, $m_{\text{Naringenin}}=0.04 \text{ mol}\cdot\text{kg}^{-1}$; ●, $m_{\text{Naringenin}}=0.05 \text{ mol}\cdot\text{kg}^{-1}$.

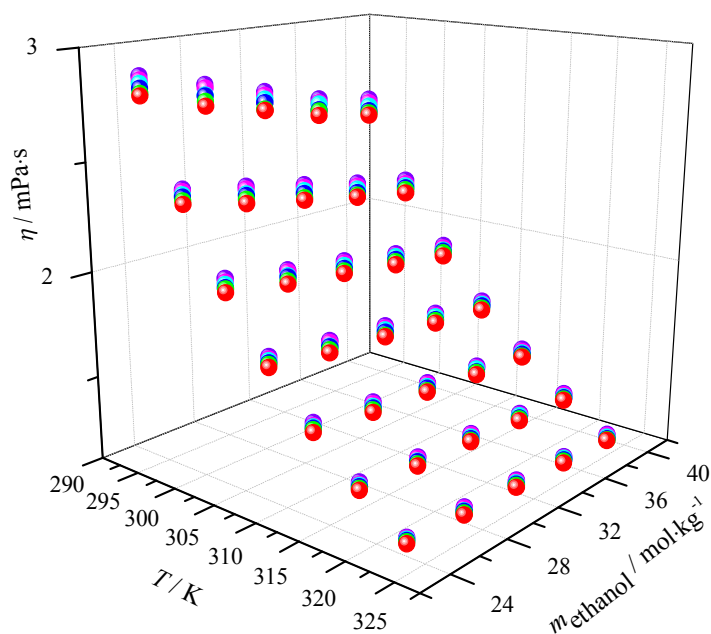


Figure S6: Viscosities of naringenin in aqueous ethanol solutions. $\bullet$, $m_{\text{Naringenin}}=0.00$ mol·kg⁻¹; $\bullet$, $m_{\text{Naringenin}}=0.01$ mol·kg⁻¹; $\bullet$, $m_{\text{Naringenin}}=0.02$ mol·kg⁻¹; $\bullet$, $m_{\text{Naringenin}}=0.03$ mol·kg⁻¹; $\bullet$, $m_{\text{Naringenin}}=0.04$ mol·kg⁻¹; $\bullet$, $m_{\text{Naringenin}}=0.05$ mol·kg⁻¹.

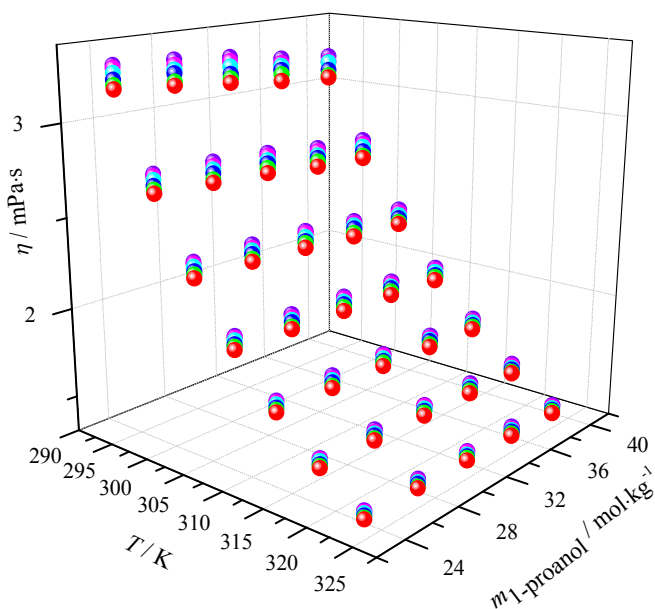


Figure S7: Viscosities of naringenin in aqueous 1-propanol solutions. $\bullet$, $m_{\text{Naringenin}}=0.00$ mol·kg⁻¹; $\bullet$, $m_{\text{Naringenin}}=0.01$ mol·kg⁻¹; $\bullet$, $m_{\text{Naringenin}}=0.02$ mol·kg⁻¹; $\bullet$, $m_{\text{Naringenin}}=0.03$ mol·kg⁻¹; $\bullet$, $m_{\text{Naringenin}}=0.04$ mol·kg⁻¹; $\bullet$, $m_{\text{Naringenin}}=0.05$ mol·kg⁻¹.