

Design, Preparation, and Physicochemical Characterisation of Alginate-Based Honey-Loaded Topical Formulations

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Table S1. pH of neat honeys and pre-gel solution formulations (n=3, data represents mean \pm SD).

Honey	Storage temperature (°C)	Sample	pH					
			1 month	2 months	3 months	4 months	5 months	6 months
Jarrah	5	Neat Honey	4.61 \pm 0.02	4.60 \pm 0.03	4.61 \pm 0.02	4.61 \pm 0.03	4.61 \pm 0.02	4.62 \pm 0.03
		Pre-gel solution	5.29 \pm 0.03	5.28 \pm 0.03	5.30 \pm 0.03	5.31 \pm 0.04	5.31 \pm 0.03	5.31 \pm 0.03
	30	Neat Honey	4.60 \pm 0.03	4.61 \pm 0.03	4.59 \pm 0.03	4.60 \pm 0.02	4.61 \pm 0.02	4.62 \pm 0.02
		Pre-gel solution	5.29 \pm 0.02	5.30 \pm 0.03	5.29 \pm 0.02	5.29 \pm 0.02	5.29 \pm 0.02	5.30 \pm 0.04
	40	Neat Honey	4.62 \pm 0.02	4.61 \pm 0.03	4.62 \pm 0.02	4.61 \pm 0.03	4.62 \pm 0.02	4.63 \pm 0.03
		Pre-gel solution	5.30 \pm 0.04	5.29 \pm 0.03	5.29 \pm 0.03	5.31 \pm 0.04	5.30 \pm 0.03	5.31 \pm 0.03
WA Manuka 2	5	Neat Honey	4.63 \pm 0.01	4.62 \pm 0.03	4.61 \pm 0.02	4.63 \pm 0.03	4.62 \pm 0.03	4.62 \pm 0.02
		Pre-gel solution	5.40 \pm 0.02	5.39 \pm 0.03	5.39 \pm 0.04	5.41 \pm 0.3	5.40 \pm 0.04	5.38 \pm 0.02
	30	Neat Honey	4.61 \pm 0.02	4.60 \pm 0.03	4.59 \pm 0.03	4.59 \pm 0.03	4.60 \pm 0.03	4.61 \pm 0.03
		Pre-gel solution	5.38 \pm 0.02	5.39 \pm 0.03	5.39 \pm 0.04	5.39 \pm 0.3	5.40 \pm 0.04	5.39 \pm 0.03
	40	Neat Honey	4.63 \pm 0.02	4.62 \pm 0.03	4.61 \pm 0.02	4.62 \pm 0.03	4.61 \pm 0.03	4.62 \pm 0.03
		Pre-gel solution	5.38 \pm 0.02	5.40 \pm 0.03	5.40 \pm 0.04	5.41 \pm 0.3	5.40 \pm 0.03	5.29 \pm 0.02

Table S2. Moisture content (%) of neat honeys and pre-gel solution formulations (n=3, data represents mean \pm SD).

Honey	Storage temperature (°C)	Sample	Moisture content (%)					
			1 month	2 months	3 months	4 months	5 months	6 months
Jarrah	5	Neat Honey	17.85 \pm 0.3	17.87 \pm 0.2	17.88 \pm 0.1	17.87 \pm 0.2	17.87 \pm 0.3	17.87 \pm 0.2
		Pre-gel solution	48.98 \pm 0.2	48.96 \pm 0.1	48.97 \pm 0.2	48.96 \pm 0.1	48.95 \pm 0.2	48.95 \pm 0.3
	30	Neat Honey	17.87 \pm 0.3	17.86 \pm 0.2	17.87 \pm 0.1	17.86 \pm 0.2	17.86 \pm 0.3	17.87 \pm 0.2
		Pre-gel solution	48.86 \pm 0.2	48.87 \pm 0.1	48.87 \pm 0.2	48.88 \pm 0.1	48.89 \pm 0.2	48.91 \pm 0.3
	40	Neat Honey	17.89 \pm 0.3	17.87 \pm 0.2	17.86 \pm 0.1	17.87 \pm 0.2	17.88 \pm 0.3	17.88 \pm 0.2
		Pre-gel solution	48.85 \pm 0.2	48.84 \pm 0.1	48.84 \pm 0.2	48.85 \pm 0.1	48.84 \pm 0.2	48.85 \pm 0.3
WA Manuka 2	5	Neat Honey	19.45 \pm 0.2	19.41 \pm 0.2	19.44 \pm 0.1	19.43 \pm 0.2	19.42 \pm 0.3	19.44 \pm 0.2
		Pre-gel solution	49.08 \pm 0.2	49.08 \pm 0.1	49.07 \pm 0.2	49.10 \pm 0.3	49.09 \pm 0.2	49.09 \pm 0.3
	30	Neat Honey	19.44 \pm 0.2	19.41 \pm 0.2	19.42 \pm 0.1	19.41 \pm 0.2	19.42 \pm 0.3	19.41 \pm 0.2
		Pre-gel solution	49.08 \pm 0.2	49.09 \pm 0.1	49.08 \pm 0.2	49.10 \pm 0.3	49.07 \pm 0.2	49.08 \pm 0.3
	40	Neat Honey	19.43 \pm 0.2	19.42 \pm 0.2	19.44 \pm 0.1	19.43 \pm 0.2	19.42 \pm 0.3	19.43 \pm 0.2
		Pre-gel solution	49.08 \pm 0.2	49.09 \pm 0.1	49.10 \pm 0.2	49.11 \pm 0.3	49.11 \pm 0.2	49.10 \pm 0.3

Table S3. Spreadability (g.cm/sec) of neat honeys and pre-gel solution formulations (n=3, data represents mean \pm SD).

Honey	Storage temperature (°C)	Sample	Spreadability (g.cm/sec)					
			1 month	2 months	3 months	4 months	5 months	6 months
Jarrah	5	Neat Honey	334.77 \pm 0.2	334.76 \pm 0.2	334.74 \pm 0.1	334.73 \pm 0.2	334.74 \pm 0.2	334.75 \pm 0.2
		Pre-gel solution	425.15 \pm 0.1	425.14 \pm 0.2	425.14 \pm 0.1	425.13 \pm 0.2	425.13 \pm 0.1	425.14 \pm 0.2
	30	Neat Honey	336.77 \pm 0.2	336.76 \pm 0.2	337.74 \pm 0.1	337.73 \pm 0.2	337.72 \pm 0.2	337.75 \pm 0.2
		Pre-gel solution	427.15 \pm 0.1	427.14 \pm 0.2	428.14 \pm 0.1	427.13 \pm 0.2	428.13 \pm 0.1	428.14 \pm 0.3
	40	Neat Honey	338.77 \pm 0.2	338.76 \pm 0.2	337.74 \pm 0.1	337.73 \pm 0.2	337.72 \pm 0.2	337.75 \pm 0.2
		Pre-gel solution	427.15 \pm 0.1	427.14 \pm 0.2	426.14 \pm 0.1	426.13 \pm 0.2	427.13 \pm 0.1	427.14 \pm 0.3
WA Manuka 2	5	Neat Honey	325.47 \pm 0.2	325.46 \pm 0.3	325.45 \pm 0.2	325.47 \pm 0.3	325.44 \pm 0.2	325.45 \pm 0.2
		Pre-gel solution	424.93 \pm 0.2	424.94 \pm 0.1	424.93 \pm 0.2	424.94 \pm 0.1	424.95 \pm 0.3	424.94 \pm 0.1
	30	Neat Honey	35.47 \pm 0.2	324.46 \pm 0.3	324.45 \pm 0.2	324.47 \pm 0.3	324.44 \pm 0.2	324.45 \pm 0.2
		Pre-gel solution	425.93 \pm 0.2	426.94 \pm 0.1	426.93 \pm 0.2	426.94 \pm 0.1	426.95 \pm 0.1	426.94 \pm 0.1
	40	Neat Honey	325.47 \pm 0.2	324.46 \pm 0.3	324.45 \pm 0.1	324.47 \pm 0.3	324.44 \pm 0.2	324.45 \pm 0.3
		Pre-gel solution	424.93 \pm 0.2	423.94 \pm 0.1	423.93 \pm 0.2	423.94 \pm 0.1	423.95 \pm 0.3	423.94 \pm 0.2

Table S4. Thickness (mm) of wet and dry sheet (n=3, data represents mean \pm SD).

Honey	Storage temperature (°C)	Sample	Thickness (mm)					
			1 month	2 months	3 months	4 months	5 months	6 months
Jarrah	5	Wet	2.01 \pm 0.02	2.02 \pm 0.02	2.00 \pm 0.03	2.03 \pm 0.02	2.01 \pm 0.01	2.02 \pm 0.02
		Dry	1.41 \pm 0.02	1.41 \pm 0.02	1.40 \pm 0.02	1.39 \pm 0.01	1.40 \pm 0.02	1.41 \pm 0.03
	30	Wet	2.02 \pm 0.02	2.02 \pm 0.02	2.01 \pm 0.03	2.01 \pm 0.02	2.01 \pm 0.01	2.00 \pm 0.02
		Dry	1.41 \pm 0.02	1.40 \pm 0.01	1.40 \pm 0.02	1.39 \pm 0.01	1.39 \pm 0.02	1.39 \pm 0.03
	40	Wet	2.02 \pm 0.02	2.01 \pm 0.02	2.01 \pm 0.03	2.01 \pm 0.02	2.00 \pm 0.01	2.00 \pm 0.02
		Dry	1.40 \pm 0.02	1.40 \pm 0.01	1.39 \pm 0.02	1.39 \pm 0.01	1.39 \pm 0.02	1.39 \pm 0.03
WA Manuka 2	5	Wet	2.01 \pm 0.02	2.01 \pm 0.02	2.02 \pm 0.01	2.02 \pm 0.02	2.02 \pm 0.01	2.01 \pm 0.02
		Dry	1.39 \pm 0.02	1.40 \pm 0.02	1.39 \pm 0.03	1.40 \pm 0.02	1.40 \pm 0.03	1.39 \pm 0.02
	30	Wet	2.02 \pm 0.01	2.02 \pm 0.02	2.02 \pm 0.01	2.01 \pm 0.02	2.01 \pm 0.01	2.01 \pm 0.02
		Dry	1.39 \pm 0.01	1.40 \pm 0.01	1.39 \pm 0.02	1.40 \pm 0.02	1.40 \pm 0.03	1.39 \pm 0.02
	40	Wet	2.01 \pm 0.02	2.00 \pm 0.02	2.00 \pm 0.01	2.00 \pm 0.02	2.01 \pm 0.01	2.01 \pm 0.02
		Dry	1.40 \pm 0.02	1.40 \pm 0.01	1.39 \pm 0.01	1.40 \pm 0.02	1.40 \pm 0.03	1.39 \pm 0.02

Table S5. Length (mm) of wet and dry sheet (n=3, data represents mean \pm SD).

Honey	Storage temperature (°C)	Sample	Length (mm)					
			1 month	2 months	3 months	4 months	5 months	6 months
Jarrah	5	Wet	94.29 \pm 0.02	94.27 \pm 0.03	94.26 \pm 0.02	94.25 \pm 0.03	94.26 \pm 0.03	94.27 \pm 0.02
		Dry	93.32 \pm 0.02	93.31 \pm 0.03	93.34 \pm 0.02	93.34 \pm 0.02	93.33 \pm 0.03	93.34 \pm 0.02
	30	Wet	94.28 \pm 0.02	94.26 \pm 0.02	94.27 \pm 0.03	94.25 \pm 0.03	94.27 \pm 0.03	94.27 \pm 0.03
		Dry	93.31 \pm 0.01	93.30 \pm 0.02	93.33 \pm 0.02	93.32 \pm 0.03	93.31 \pm 0.03	93.34 \pm 0.02
	40	Wet	94.28 \pm 0.02	94.27 \pm 0.03	94.28 \pm 0.02	94.26 \pm 0.02	94.26 \pm 0.03	94.26 \pm 0.02
		Dry	93.30 \pm 0.02	93.30 \pm 0.01	93.32 \pm 0.02	93.33 \pm 0.01	93.33 \pm 0.03	93.32 \pm 0.02
WA Manuka 2	5	Wet	94.25 \pm 0.02	94.23 \pm 0.02	94.23 \pm 0.01	94.24 \pm 0.03	94.24 \pm 0.02	94.21 \pm 0.02
		Dry	93.28 \pm 0.02	93.27 \pm 0.02	93.27 \pm 0.02	93.28 \pm 0.02	93.27 \pm 0.02	93.27 \pm 0.03
	30	Wet	94.26 \pm 0.02	94.24 \pm 0.02	94.24 \pm 0.01	94.24 \pm 0.03	94.25 \pm 0.02	94.23 \pm 0.02
		Dry	93.27 \pm 0.02	93.26 \pm 0.02	93.25 \pm 0.02	93.27 \pm 0.02	93.27 \pm 0.02	93.24 \pm 0.03
	40	Wet	94.26 \pm 0.02	94.24 \pm 0.03	94.23 \pm 0.01	94.25 \pm 0.02	94.25 \pm 0.02	94.22 \pm 0.02
		Dry	93.26 \pm 0.02	93.25 \pm 0.02	93.26 \pm 0.01	93.27 \pm 0.02	93.27 \pm 0.02	93.27 \pm 0.01

Table S6. Tensile strength of honey-loaded wet and dry sheets (n=3, data represents mean \pm SD).

Honey	Storage temperature (°C)	Sample	Tensile strength (Pa)					
			1 month	2 months	3 months	4 months	5 months	6 months
Jarrah	5	Wet	107.18 \pm 0.31	106.75 \pm 0.25	106.85 \pm 0.26	106.65 \pm 0.28	106.76 \pm 0.29	106.69 \pm 0.31
		Dry	193.33 \pm 0.32	193.35 \pm 0.34	193.28 \pm 0.31	193.27 \pm 0.35	193.41 \pm 0.35	193.36 \pm 0.32
	30	Wet	107.38 \pm 0.21	107.35 \pm 0.25	107.37 \pm 0.26	107.45 \pm 0.28	107.76 \pm 0.29	107.89 \pm 0.21
		Dry	193.83 \pm 0.22	193.95 \pm 0.24	194.09 \pm 0.21	194.17 \pm 0.25	194.41 \pm 0.25	195.86 \pm 0.22
	40	Wet	107.78 \pm 0.21	107.95 \pm 0.25	108.15 \pm 0.26	108.25 \pm 0.28	108.86 \pm 0.29	108.87 \pm 0.21
		Dry	194.33 \pm 0.22	194.35 \pm 0.24	194.58 \pm 0.21	195.16 \pm 0.25	195.47 \pm 0.25	195.66 \pm 0.26
WA Manuka 2	5	Wet	108.33 \pm 0.32	108.31 \pm 0.34	108.31 \pm 0.32	108.31 \pm 0.29	108.31 \pm 0.34	108.31 \pm 0.34
		Dry	194.65 \pm 0.32	194.62 \pm 0.32	194.72 \pm 0.32	194.32 \pm 0.32	194.75 \pm 0.32	194.64 \pm 0.32
	30	Wet	108.64 \pm 0.22	108.86 \pm 0.24	108.93 \pm 0.22	109.11 \pm 0.29	109.43 \pm 0.24	109.66 \pm 0.24
		Dry	194.85 \pm 0.22	194.95 \pm 0.22	195.32 \pm 0.22	195.52 \pm 0.22	195.65 \pm 0.22	195.97 \pm 0.22
	40	Wet	108.93 \pm 0.22	108.99 \pm 0.24	109.09 \pm 0.22	109.11 \pm 0.29	109.22 \pm 0.24	109.41 \pm 0.24
		Dry	194.95 \pm 0.22	195.22 \pm 0.22	195.32 \pm 0.22	195.42 \pm 0.22	195.77 \pm 0.32	195.88 \pm 0.22

Table S7. Swelling Index of Dry Sheets at 5°C (n=3, data represents mean ± SD).

Duration of stability study (month)	Time (min)	Sample (Dry sheet)	
		WA Jarrah Honey	WA Manuka Honey 2
1	10	52.12±0.15	54.52±0.16
	20	55.57±0.17	58.60±0.19
	30	55.61±0.15	58.63±0.16
2	10	52.11±0.12	54.51±0.16
	20	55.58±0.17	58.59±0.16
	30	55.59±0.15	58.62±0.16
3	10	52.12±0.12	54.51±0.19
	20	55.61±0.17	58.59±0.19
	30	55.62±0.15	58.62±0.19
4	10	52.09±0.12	54.52±0.16
	20	55.55±0.18	58.53±0.16
	30	55.58±0.15	58.61±0.16
5	10	52.08±0.12	54.51±0.19
	20	55.57±0.17	58.52±0.19
	30	55.59±0.15	58.63±0.16
6	10	52.11±0.17	54.51±0.18
	20	55.56±0.17	58.59±0.19
	30	55.59±0.17	58.61±0.21

Table S8. Swelling Index of Dry Sheets at 30°C (n=3, data represents mean ± SD).

Duration of stability study (month)	Time (min)	Sample (Dry sheet)	
		WA Jarrah Honey	WA Manuka Honey 2
1	10	52.22±0.17	54.32±0.18
	20	55.55±0.15	58.57±0.19
	30	55.60±0.15	58.60±0.17
2	10	52.21±0.12	54.31±0.16
	20	55.56±0.17	58.56±0.16
	30	55.59±0.15	58.60±0.16
3	10	52.12±0.12	54.31±0.19
	20	55.56±0.17	58.57±0.17
	30	55.59±0.17	58.59±0.19
4	10	52.11±0.15	54.32±0.16
	20	55.56±0.18	58.55±0.16
	30	55.59±0.15	58.60±0.16
5	10	52.10±0.15	54.31±0.17
	20	55.55±0.12	58.55±0.19
	30	55.58±0.15	58.60±0.16
6	10	52.13±0.17	54.31±0.18
	20	55.57±0.17	58.57±0.19
	30	55.60±0.17	58.61±0.21

Table S9. Swelling Index of Dry Sheets at 40°C (n=3, data represents mean \pm SD).

Duration of stability study (month)	Time (min)	Sample (Dry sheet)	
		WA Jarrah Honey	WA Manuka Honey 2
1	10	52.21 \pm 0.17	54.22 \pm 0.18
	20	55.56 \pm 0.15	58.56 \pm 0.19
	30	55.60 \pm 0.15	58.59 \pm 0.17
2	10	52.22 \pm 0.12	54.21 \pm 0.16
	20	55.56 \pm 0.17	58.55 \pm 0.16
	30	55.60 \pm 0.15	58.60 \pm 0.16
3	10	52.17 \pm 0.12	54.21 \pm 0.19
	20	55.57 \pm 0.17	58.56 \pm 0.17
	30	55.59 \pm 0.17	58.59 \pm 0.19
4	10	52.21 \pm 0.15	54.22 \pm 0.16
	20	55.56 \pm 0.18	58.54 \pm 0.16
	30	55.59 \pm 0.15	58.60 \pm 0.16
5	10	52.14 \pm 0.15	54.21 \pm 0.17
	20	55.56 \pm 0.12	58.55 \pm 0.19
	30	55.59 \pm 0.15	58.60 \pm 0.16
6	10	52.14 \pm 0.17	54.21 \pm 0.18
	20	55.57 \pm 0.17	58.57 \pm 0.19
	30	55.60 \pm 0.17	58.60 \pm 0.21

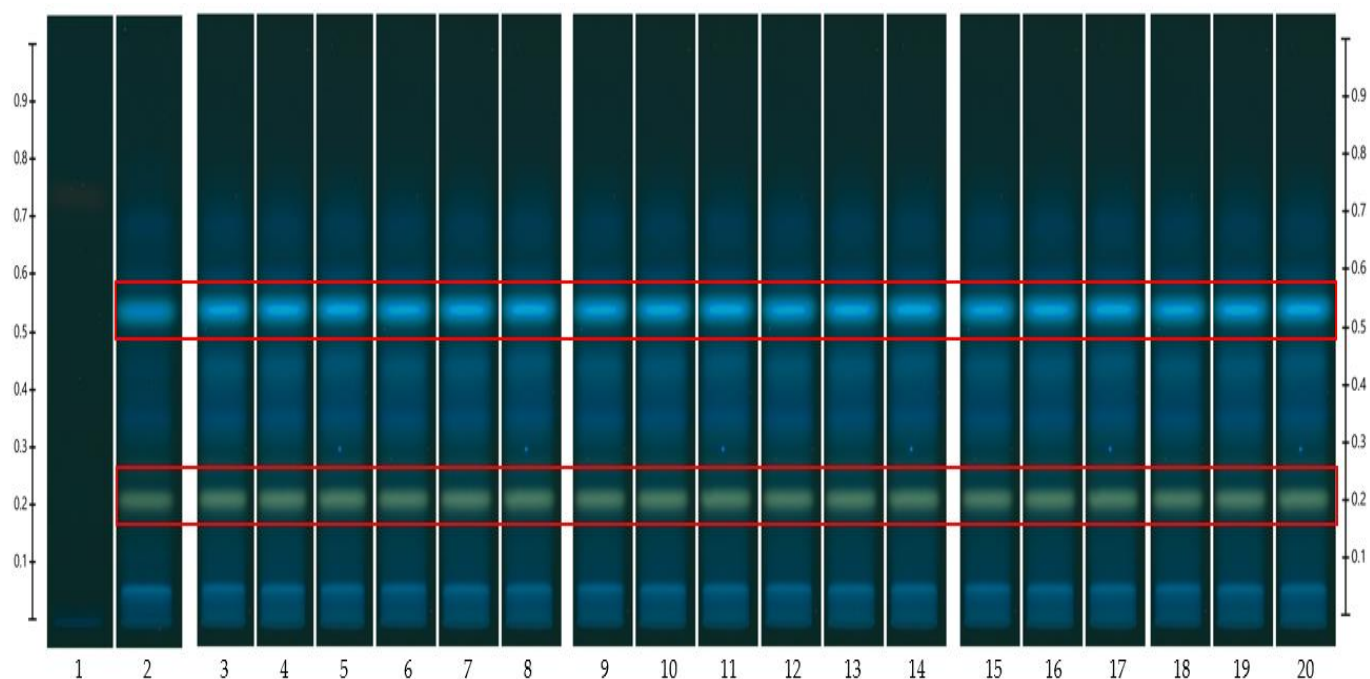


Figure S1. Jarrah (JAR) honey - Red box indicates the monitored bands at Rf 0.20 and 0.53; Track 1 - 4,5,7-trihydroxyflavone (internal standard), Track 2- JAR honey extract (system suitability test), Tracks 3-8 - JAR neat honey extract collected at 1-6 months storage at 5°C, Tracks 9-14 - JAR neat honey extract collected at 1-6 months storage at 30°C, Tracks 15-20 - JAR neat honey extract collected at 1-6 months storage at 40°C; Image taken at 366 nm.

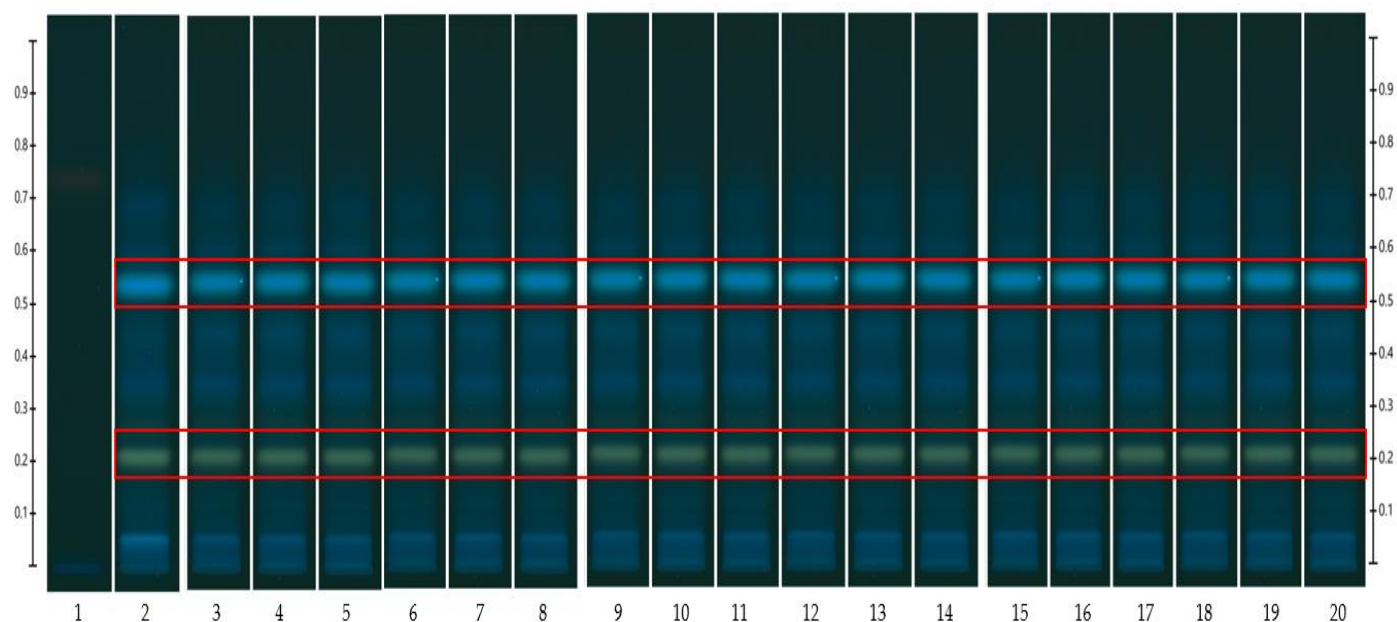


Figure S2. JAR honey - Red box indicates the monitored bands at Rf 0.20 and 0.53; Track 1 - 4,5,7-trihydroxyflavone (internal standard), Track 2- JAR honey extract (system suitability test), Tracks 3-8 - JAR pre-gel solution extract collected at 1-6 months storage at 5°C, Tracks 9-14 – JAR pre-gel solution extract collected at 1-6 months storage at 30°C, Tracks 15-20 – JAR pre-gel solution extract collected at 1-6 months storage at 40°C; Image taken at 366 nm.

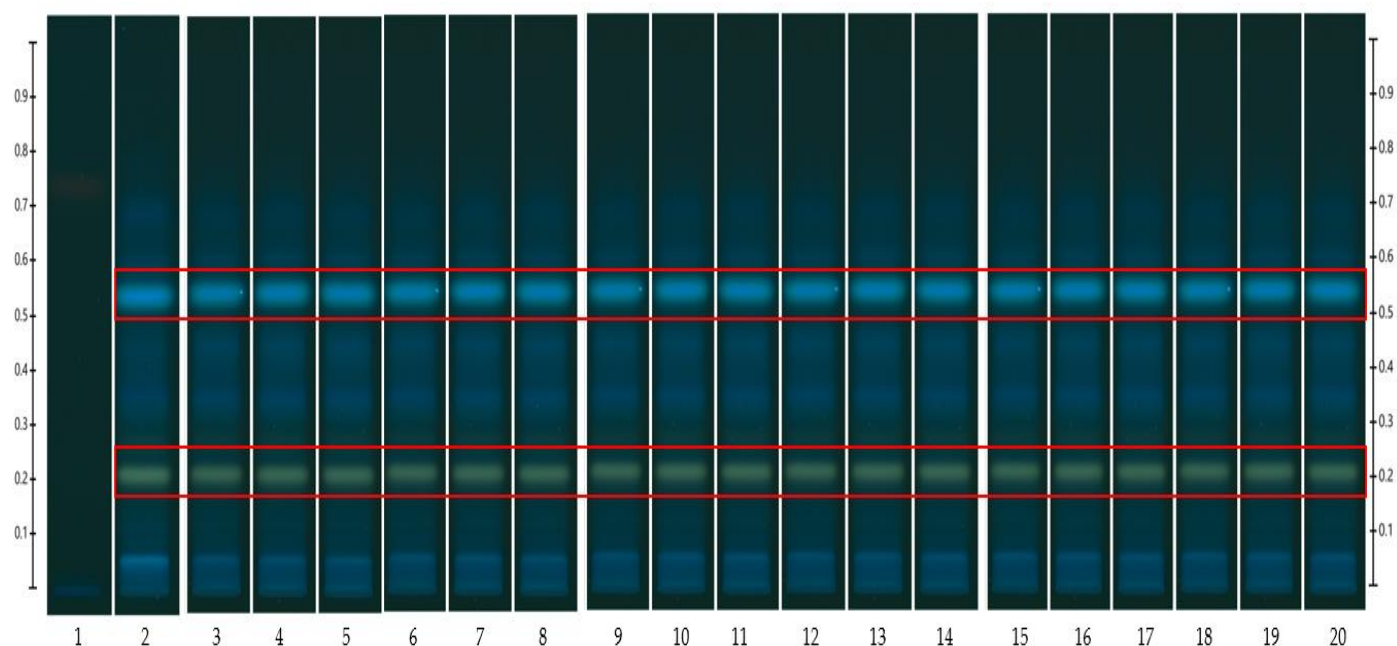


Figure S3. JAR honey - Red box indicates the monitored bands at Rf 0.20 and 0.53; Track 1 - 4,5,7-trihydroxyflavone (internal standard), Track 2- JAR honey extract (system suitability test), Tracks 3-8 - JAR wet sheet extract collected at 1-6 months storage at 5°C, Tracks 9-14 – JAR wet sheet extract collected at 1-6 months storage at 30°C, Tracks 15-20 – JAR wet sheet extract collected at 1-6 months storage at 40°C; Image taken at 366 nm.

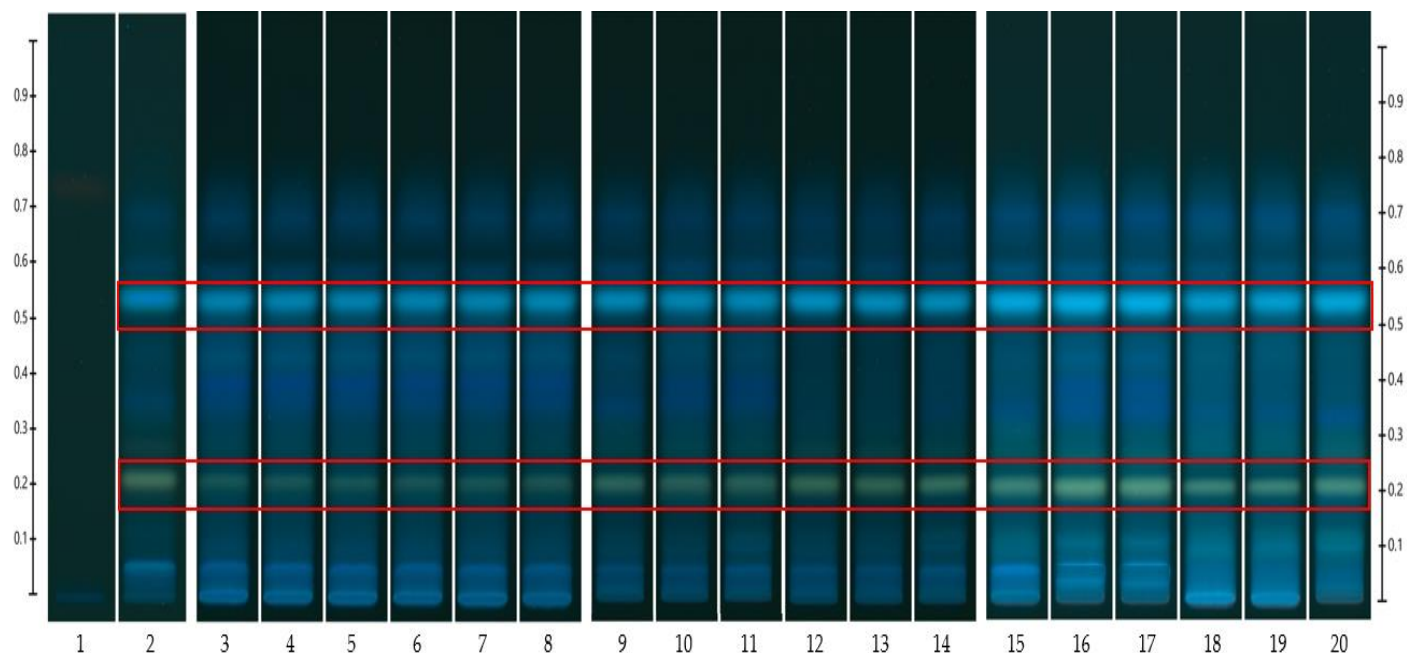


Figure S4. JAR honey - Red box indicates the monitored bands at Rf 0.20 and 0.53; Track 1 - 4,5,7-trihydroxyflavone (internal standard), Track 2- JAR honey extract (system suitability test), Tracks 3-8 - JAR dry sheet extract collected at 1-6 months storage at 5°C, Tracks 9-14 – JAR dry sheet extract collected at 1-6 months storage at 30°C, Tracks 15-20 – JAR dry sheet extract collected at 1-6 months storage at 40°C; Image taken at 366 nm.

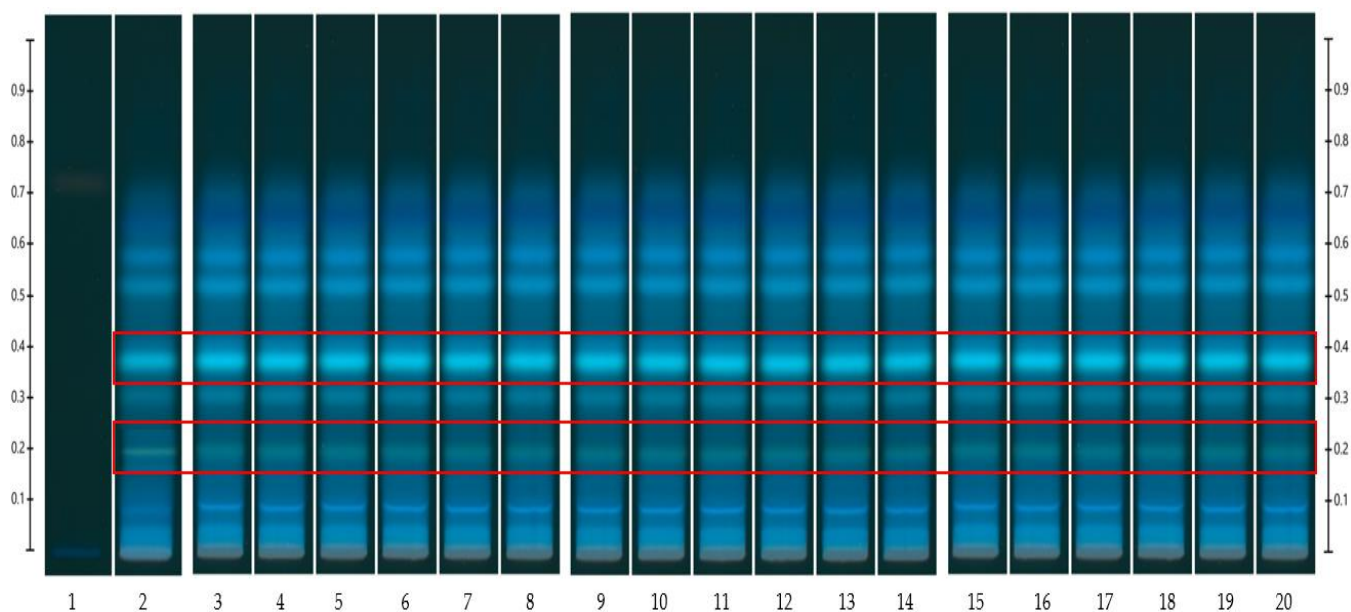


Figure S5. WA Manuka 2 (WAM2) honey - Red box indicates the monitored bands at Rf 0.20 and 0.38; Track 1 - 4,5,7-trihydroxyflavone (internal standard), Track 2- WAM 2 honey extract (system suitability test), Tracks 3-8 - WAM2 neat honey extract collected at 1-6 months storage at 5°C, Tracks 9-14 – WAM2 neat honey extract collected at 1-6 months storage at 30°C, Tracks 15-20 – WAM2 neat honey extract collected at 1-6 months storage at 40°C; Image taken at 366 nm.

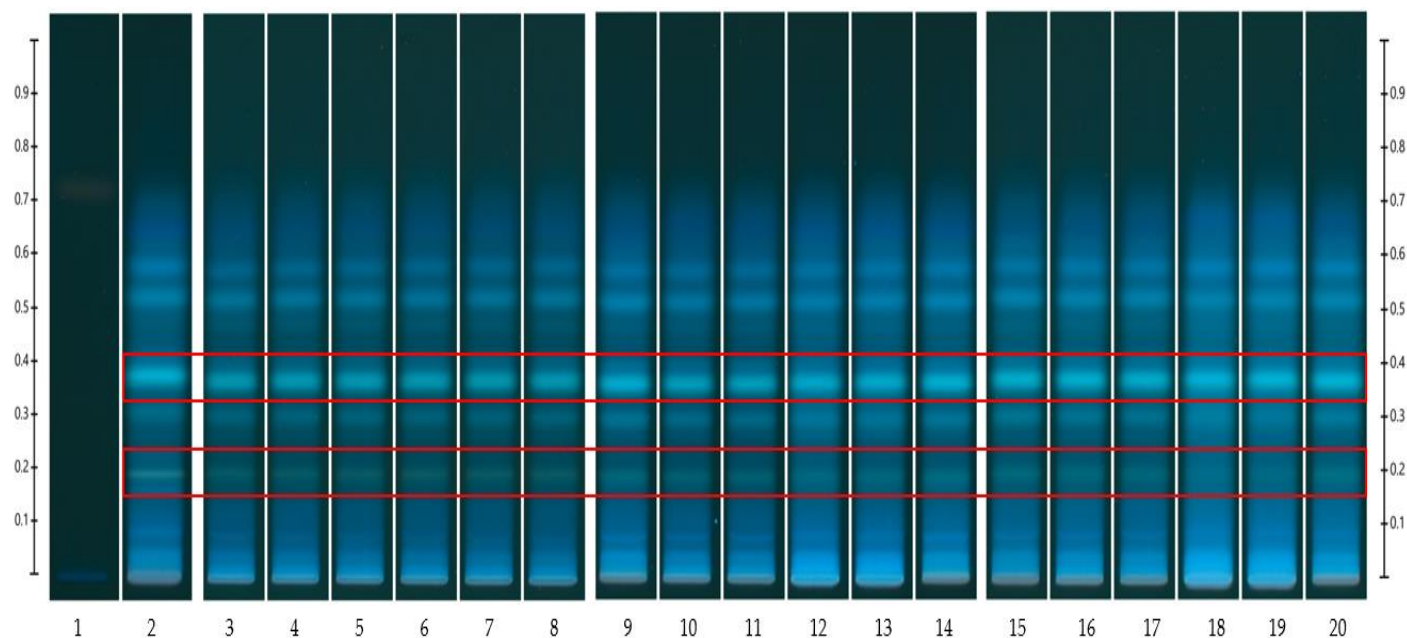


Figure S6. WAM2 honey - Red box indicates the monitored bands at Rf 0.20 and 0.38; Track 1 - 4,5,7-trihydroxyflavone (internal standard), Track 2- WAM 2 honey extract (system suitability test), Tracks 3-8 - WAM2 pre-gel solution extract collected at 1-6 months storage at 5°C, Tracks 9-14 – WAM2 pre-gel solution extract collected at 1-6 months storage at 30°C, Tracks 15-20 – WAM2 pre-gel solution extract collected at 1-6 months storage at 40°C; Image taken at 366 nm.

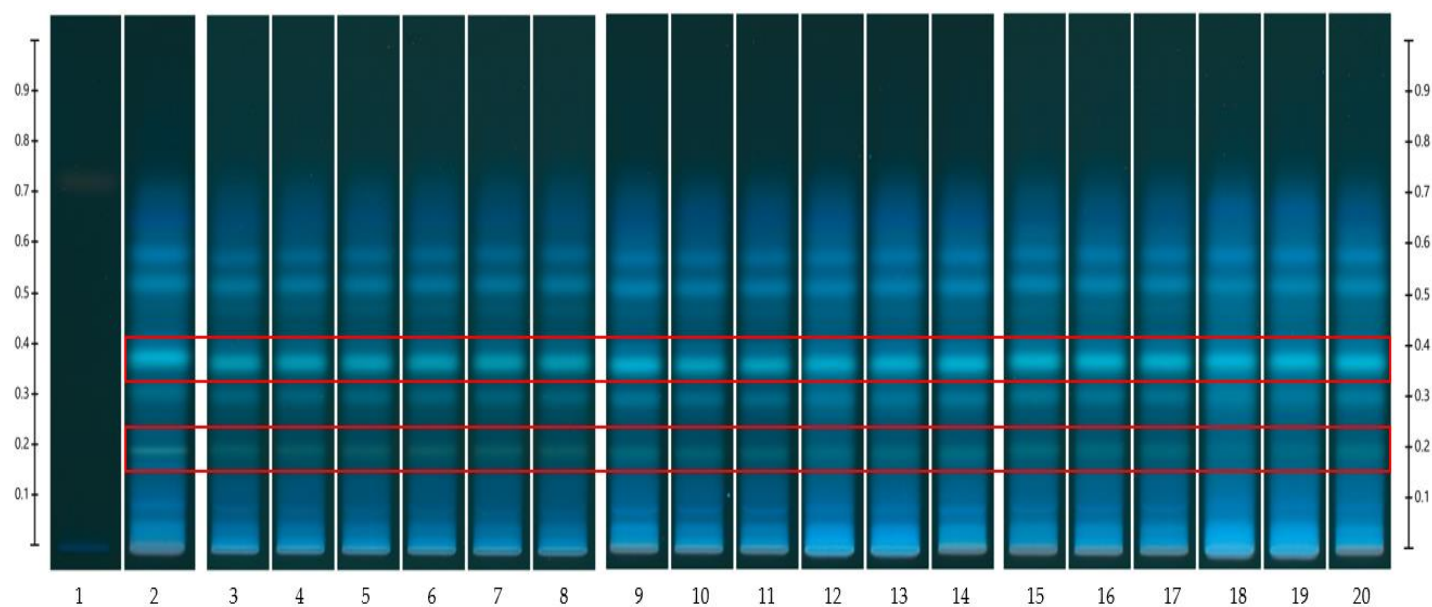


Figure S7. WAM2 honey - Red box indicates the monitored bands at Rf 0.20 and 0.38; Track 1 - 4,5,7-trihydroxyflavone (internal standard), Track 2- WAM 2 honey extract (system suitability test), Tracks 3-8 - WAM2 wet sheet extract collected at 1-6 months storage at 5°C, Tracks 9-14 – WAM2 wet sheet extract collected at 1-6 months storage at 30°C, Tracks 15-20 – WAM2 wet sheet extract collected at 1-6 months storage at 40°C; Image taken at 366 nm.

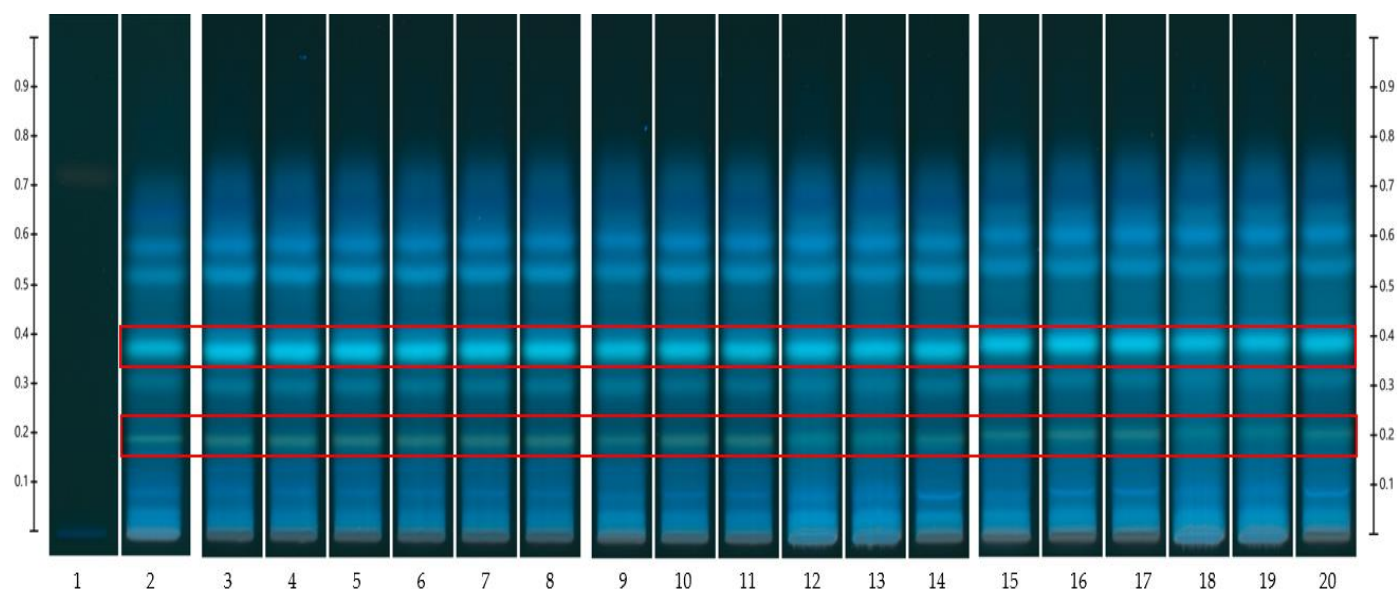


Figure S8. WAM2 honey - Red box indicates the monitored bands at Rf 0.20 and 0.38; Track 1 - 4,5,7-trihydroxyflavone (internal standard), Track 2- WAM 2 honey extract (system suitability test), Tracks 3-8 - WAM2 dry sheet extract collected at 1-6 months storage at 5°C, Tracks 9-14 – WAM2 dry sheet extract collected at 1-6 months storage at 30°C, Tracks 15-20 – WAM2 dry sheet extract collected at 1-6 months storage at 40°C; Image taken at 366 nm.

Table S10. Peak area of selected bands of Jarrah honey and WA Manuka honey 2 and their respective formulations (n=3, data represents mean \pm SD).

Honey	Storage temperature (°C)	Sample	Weight (g)	Rf of Monitored Compound	Peak area (AU $\times 10^{-3}$) per band					
					1 month	2 month	3 month	4 month	5 month	6 month
WA Jarrah	5	Neat honey	1.01	0.20	5.3 \pm 0.01	5.3 \pm 0.02	5.3 \pm 0.02	5.3 \pm 0.02	5.2 \pm 0.01	5.3 \pm 0.01
				0.53	15.2 \pm 0.02	15.2 \pm 0.02	15.2 \pm 0.02	15.2 \pm 0.02	15.2 \pm 0.02	15.2 \pm 0.02
		Pre-gel	1.02	0.20	5.3 \pm 0.03	5.3 \pm 0.03	5.3 \pm 0.04	5.3 \pm 0.04	5.2 \pm 0.03	5.3 \pm 0.03
				0.53	15.2 \pm 0.02	15.2 \pm 0.02	15.2 \pm 0.03	15.2 \pm 0.02	15.2 \pm 0.03	15.2 \pm 0.02
		Wet sheet	1.01	0.20	5.2 \pm 0.01	5.2 \pm 0.01	5.2 \pm 0.01	5.2 \pm 0.01	5.2 \pm 0.01	5.2 \pm 0.01
				0.53	14.8 \pm 0.03	14.8 \pm 0.03	14.8 \pm 0.03	14.8 \pm 0.03	14.8 \pm 0.03	14.8 \pm 0.03
	30	Dry sheet	1.02	0.20	14.0 \pm 0.04	14.0 \pm 0.02	14.0 \pm 0.02	14.0 \pm 0.02	14.0 \pm 0.02	14.0 \pm 0.02
				0.53	40.8 \pm 0.03	40.8 \pm 0.03	40.7 \pm 0.03	40.8 \pm 0.03	40.7 \pm 0.03	40.8 \pm 0.02
		Neat honey	1.02	0.20	5.2 \pm 0.02	5.3 \pm 0.02	5.2 \pm 0.02	5.3 \pm 0.02	5.2 \pm 0.01	5.2 \pm 0.03
				0.53	15.2 \pm 0.02	15.2 \pm 0.03	15.2 \pm 0.02	15.2 \pm 0.02	15.2 \pm 0.03	15.2 \pm 0.02
		Pre-gel	1.01	0.20	5.2 \pm 0.02	5.2 \pm 0.03	5.2 \pm 0.03	5.2 \pm 0.02	5.2 \pm 0.03	5.2 \pm 0.02
				0.53	15.2 \pm 0.02	15.2 \pm 0.02	15.2 \pm 0.03	15.2 \pm 0.02	15.2 \pm 0.03	15.2 \pm 0.02
WA Manuka 2	40	Wet sheet	1.02	0.20	5.1 \pm 0.01	5.1 \pm 0.01	5.1 \pm 0.02	5.1 \pm 0.01	5.1 \pm 0.02	5.1 \pm 0.02
				0.53	14.8 \pm 0.03	14.8 \pm 0.03	14.8 \pm 0.02	14.8 \pm 0.03	14.8 \pm 0.02	14.8 \pm 0.03
		Dry sheet	1.02	0.20	14.1 \pm 0.03	14.1 \pm 0.02	14.1 \pm 0.02	14.1 \pm 0.02	14.1 \pm 0.02	14.1 \pm 0.03
				0.53	40.8 \pm 0.03	40.8 \pm 0.03	40.7 \pm 0.03	40.8 \pm 0.03	40.7 \pm 0.03	40.8 \pm 0.02
		Neat honey	1.01	0.20	5.2 \pm 0.01	5.2 \pm 0.02	5.2 \pm 0.02	5.2 \pm 0.02	5.2 \pm 0.01	5.2 \pm 0.01
				0.53	15.2 \pm 0.01	15.2 \pm 0.02	15.2 \pm 0.01	15.2 \pm 0.02	15.2 \pm 0.02	15.2 \pm 0.01
	5	Pre-gel	1.02	0.20	5.2 \pm 0.03	5.2 \pm 0.03	5.2 \pm 0.04	5.2 \pm 0.02	5.2 \pm 0.03	5.2 \pm 0.02
				0.53	15.2 \pm 0.02	15.2 \pm 0.02	15.2 \pm 0.03	15.2 \pm 0.02	15.2 \pm 0.03	15.2 \pm 0.02
		Wet sheet	1.01	0.20	5.1 \pm 0.02	5.1 \pm 0.01	5.1 \pm 0.01	5.1 \pm 0.02	5.1 \pm 0.01	5.1 \pm 0.02
				0.53	14.8 \pm 0.02	14.8 \pm 0.02	14.8 \pm 0.03	14.8 \pm 0.03	14.8 \pm 0.02	14.8 \pm 0.03
		Dry sheet	1.01	0.20	14.0 \pm 0.03	14.1 \pm 0.02	14.0 \pm 0.03	14.0 \pm 0.02	14.0 \pm 0.02	14.0 \pm 0.02
				0.53	40.8 \pm 0.02	40.8 \pm 0.03	40.8 \pm 0.03	40.8 \pm 0.03	40.8 \pm 0.03	40.8 \pm 0.02
	5	Neat honey	1.01	0.20	17.4 \pm 0.03	17.4 \pm 0.03	17.4 \pm 0.03	17.4 \pm 0.04	17.4 \pm 0.03	17.4 \pm 0.03
				0.38	23.5 \pm 0.03	23.5 \pm 0.04	23.5 \pm 0.03	23.5 \pm 0.04	23.5 \pm 0.04	23.5 \pm 0.02
		Pre-gel	1.02	0.20	17.3 \pm 0.03	17.3 \pm 0.03	17.3 \pm 0.02	17.3 \pm 0.03	17.3 \pm 0.02	17.3 \pm 0.03
				0.38	23.4 \pm 0.02	23.4 \pm 0.02	23.4 \pm 0.01	23.4 \pm 0.02	23.4 \pm 0.01	23.4 \pm 0.03
		Wet sheet	1.02	0.20	17.1 \pm 0.03	17.1 \pm 0.03	17.1 \pm 0.04	17.1 \pm 0.04	17.1 \pm 0.03	17.1 \pm 0.04
				0.38	23.3 \pm 0.02	23.3 \pm 0.04	23.3 \pm 0.04	23.3 \pm 0.03	23.3 \pm 0.04	23.3 \pm 0.03
	40	Dry sheet	1.01	0.20	47.5 \pm 0.03	47.5 \pm 0.04	47.5 \pm 0.03	47.5 \pm 0.04	47.5 \pm 0.02	47.5 \pm 0.03
				0.38	64.9 \pm 0.02	64.9 \pm 0.03	64.9 \pm 0.02	64.9 \pm 0.03	64.9 \pm 0.02	64.9 \pm 0.02

30	Neat honey	1.02	0.20	17.4±0.03	17.4±0.03	17.4±0.03	17.4±0.04	17.4±0.03	17.4±0.03
			0.38	23.5±0.03	23.5±0.04	23.5±0.03	23.5±0.04	23.5±0.04	23.5±0.02
	Pre-gel	1.01	0.20	17.3±0.03	17.3±0.03	17.3±0.02	17.3±0.03	17.3±0.02	17.3±0.03
			0.38	23.4±0.02	23.4±0.02	23.4±0.01	23.4±0.02	23.4±0.01	23.4±0.02
	Wet sheet	1.02	0.20	17.2±0.03	17.2±0.03	17.2±0.04	17.2±0.04	17.2±0.03	17.2±0.04
			0.38	23.3±0.02	23.3±0.04	23.3±0.04	23.3±0.03	23.3±0.04	23.3±0.03
	Dry sheet	1.02	0.20	47.6±0.03	47.6±0.04	47.6±0.03	47.6±0.04	47.6±0.02	47.6±0.03
			0.38	65.0±0.02	65.0±0.03	65.0±0.02	65.0±0.03	65.0±0.02	65.0±0.03
	Neat honey	1.01	0.20	17.4±0.03	17.4±0.03	17.4±0.03	17.4±0.04	17.4±0.03	17.4±0.03
			0.38	23.5±0.02	23.5±0.04	23.5±0.03	23.5±0.04	23.5±0.04	23.5±0.02
	Pre-gel	1.02	0.20	17.3±0.03	17.3±0.03	17.3±0.02	17.3±0.03	17.3±0.02	17.3±0.03
			0.38	23.4±0.03	23.4±0.02	23.4±0.01	23.4±0.02	23.4±0.01	23.4±0.03
40	Wet sheet	1.02	0.20	17.1±0.03	17.1±0.03	17.1±0.04	17.1±0.02	17.1±0.03	17.1±0.02
			0.38	23.3±0.02	23.3±0.04	23.3±0.04	23.3±0.03	23.3±0.04	23.3±0.03
	Dry sheet	1.02	0.20	47.5±0.03	47.5±0.03	47.5±0.03	47.5±0.03	47.5±0.02	47.5±0.03
			0.38	64.9±0.03	64.9±0.03	64.9±0.02	64.9±0.03	64.9±0.02	64.9±0.02

Table S11. Peak area of selected bands in wet and dry sheets of Jarrah and WA Manuka honey (n=3, data represents mean ± SD).

Honey	Storage temperature (°C)	Sample	Weight (g)	Rf of Monitored Compound	Peak area (AU x 10 ⁻³) per sheet					
					1 month	2 month	3 month	4 month	5 month	6 month
WA Jarrah	5	Wet sheet	1.01	0.20	130±0.02	130±0.02	130±0.01	130±0.02	130±0.02	130±0.01
				0.53	370±0.02	370±0.02	370±0.03	370±0.02	370±0.03	370±0.02
		Dry sheet	1.02	0.20	126±0.01	126±0.02	126±0.01	126±0.02	126±0.02	126±0.01
				0.53	367±0.03	367±0.03	366±0.02	367±0.02	366±0.03	367±0.02
	30	Wet sheet	1.02	0.20	128±0.02	128±0.02	128±0.02	127±0.02	128±0.02	128±0.02
				0.53	370±0.03	371±0.03	370±0.03	370±0.03	371±0.03	370±0.03
		Dry sheet	1.01	0.20	127±0.03	127±0.03	127±0.03	127±0.03	127±0.03	127±0.02
				0.53	367±0.02	367±0.03	368±0.02	367±0.02	368±0.02	367±0.02
	40	Wet sheet	1.02	0.20	128±0.02	127±0.02	128±0.02	127±0.02	128±0.02	127±0.02
				0.53	369±0.02	369±0.02	369±0.02	369±0.02	369±0.02	369±0.02
		Dry sheet	1.01	0.20	126±0.03	127±0.03	126±0.03	127±0.03	126±0.03	127±0.01
				0.53	367±0.02	368±0.02	368±0.02	367±0.01	367±0.02	367±0.02
WA Manuka 2	5	Wet sheet	1.01	0.20	427±0.02	427±0.02	426±0.03	427±0.02	426±0.03	427±0.02
				0.38	582±0.03	582±0.03	583±0.03	582±0.03	582±0.03	583±0.03
		Dry sheet	1.01	0.20	428±0.03	428±0.03	427±0.02	428±0.03	427±0.02	428±0.03
				0.38	584±0.03	585±0.03	584±0.03	585±0.03	584±0.02	584±0.03
	30	Wet sheet	1.02	0.20	428±0.02	428±0.02	428±0.02	428±0.02	428±0.02	428±0.02
				0.38	581±0.03	582±0.03	581±0.03	582±0.03	581±0.02	581±0.03
		Dry sheet	1.02	0.20	427±0.03	428±0.03	427±0.03	428±0.03	427±0.03	427±0.03
				0.38	585±0.02	585±0.02	584±0.02	585±0.02	584±0.02	585±0.02
	40	Wet sheet	1.01	0.20	427±0.03	428±0.03	427±0.03	427±0.03	428±0.03	427±0.03
				0.38	582±0.02	581±0.02	581±0.02	582±0.02	581±0.02	582±0.02
		Dry sheet	1.02	0.20	427±0.02	426±0.02	426±0.02	427±0.02	426±0.02	427±0.02
				0.38	584±0.02	584±0.02	585±0.02	584±0.02	585±0.02	584±0.02

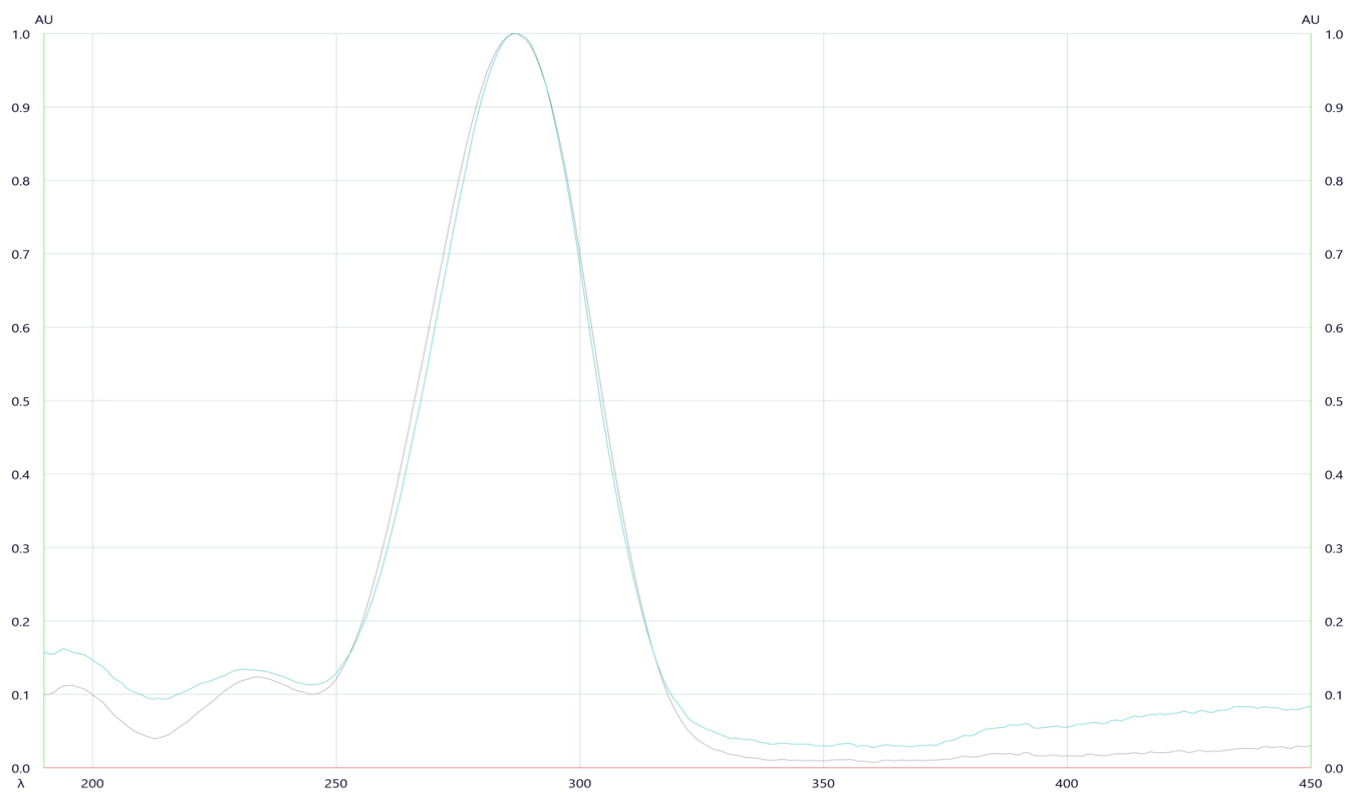


Figure S9. Absorbance spectra of HMF aqueous solution (grey line) and honey extract (blue line).