

SUPPLEMENTARY MATERIALS

The efficient synthesis and anti-fatigue activity evaluation of macamides: the unique bioactive compounds in maca

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Table S1. ¹H NMR spectrum data of macamide **1-5**. Spectrums were recorded at 400 MHz in CDCl₃.

Pro- tons	1	2	3	4	5
2	2.20 t (4.0, 8.0)	2.21 t (4.0, 8.0)	2.20 t (4.0, 8.0)	2.20 t (4.0, 8.0)	2.20 t (4.0, 8.0)
3	1.65 m	1.65 m	1.67 m	1.65 m	1.65 m
4	1.25 m	1.31 m	1.31 m	1.31 m	1.30 m
5	1.25 m	1.31 m	1.31 m	1.31 m	1.30 m
6	1.25 m	1.31 m	1.31 m	1.31 m	1.30 m
7	1.25 m	1.31 m	1.31 m	1.31 m	1.30 m
8	1.25 m	2.06 t (8.0, 8.0)	2.05 d (8.0)	2.05 d (8.0)	2.07 m
9	1.25 m	5.31 d (4.0)	5.39 m	5.41 m	5.37 d (4.0)
10	1.25 m	5.36 dd (20.0, 16.0)	5.37 m	5.39 m	5.36 m
11	1.25 m	2.80 t (8.0, 4.0)	2.76 t (4.0, 8.0)	2.77 t (4.0, 8.0)	2.80 t (8.0, 4.0)
12	1.25 m	5.32 m	5.35 m	5.35 m	5.34 m
13	1.25 m	5.33 m	5.34 m	5.32 m	5.32 m
14	1.25 m	2.80 t (8.0, 4.0)	2.04 d (8.0)	2.04 d (8.0)	2.80 t (8.0,4.0)
15	1.29 m	5.37 m	1.31 m	1.31 m	5.32 m
16	0.87 t (4.0, 8.0)	5.33 m	1.31 m	1.31 m	5.31 m
17	-	1.30 m	1.31 m	1.31 m	2.05 m
18	-	0.97 t (8.0, 8.0)	0.90 t (4.0, 4.0)	0.89 t (4.0, 8.0)	0.97 t (4.0, 8.0)
1'	4.44 d (8.0)	4.45 d (8.0)	4.40 d (8.0)	4.43 d (8.0)	4.40 d (8.0)
3'	7.21 m	7.28 d (4.0)	6.80 d (4.0)	7.28 m	6.86 m
4'	7.33 m	7.33 m	6.84 m	7.35 m	6.86 m
5'	7.28 m	7.32 m	6.81 m	7.29 m	6.82 m
6'	7.36 m	7.35 m	-	7.33 m	-
7'	7.31 m	7.29 d (4.0)	5.72 s	7.28 m	5.77 s
N-H	5.71 br s	5.70 br s	7.28 br m	5.71 br s	7.26 br m
O-CH ₃	-	-	3.79 s		3.79 s

Table S2. ^{13}C NMR spectrum of macamide **1-5**. Spectrums were recorded at 100 MHz in CDCl_3 .

Carbon	1	2	3	4	5
1	173.04 s	173.38 s	173.07 s	172.85 s	173.03 s
2	37.18 t	37.27 t	36.91 t	36.84 t	36.83 t
3	25.92 t	29.90 t	26.06 t	25.70 t	29.83 t
4	29.64 t	29.74 t	29.74 t	27.34 t	29.15 t
5	30.00 t	29.70 t	29.40 t	29.84 t	29.71 t
6	30.00 t	29.58 t	27.18 t	29.84 t	29.61 t
7	30.00 t	27.66 t	26.06 t	29.84 t	27.40 t
8	30.00 t	25.52 t	26.02 t	29.84 t	25.25 t
9	30.00 t	132.34 d	128.18 d	130.45 d	131.99 d
10	30.00 t	128.19 d	113.59 d	127.45 d	130.27 d
11	30.00 t	26.21 t	22.61 t	22.74 t	25.25 t
12	30.00 t	128.14 d	113.08 d	127.45 t	129.12 d
13	30.00 t	127.98 d	128.00 d	130.15 d	128.44 d
14	32.07 t	26.08 t	27.18 t	29.84 t	25.25 t
15	22.71 t	127.72 d	26.06 t	29.84 t	127.63 d
16	14.26 q	130.98 d	31.62 d	31.80 d	126.96 d
17	-	20.89 t	26.02 t	25.88 t	20.28 t
18	-	14.54 q	14.31 q	14.18 q	14.79 q
1'	43.96 t	43.90 t	43.54 t	43.75t	43.81 t
2'	138.56 s	138.90 s	140.09 s	138.48 s	140.49 s
3'	128.24 d	129.06 d	130.56 d	128.90 d	120.17 d
4'	128.86 d	128.69 d	130.18 d	127.15 d	126.96 d
5'	127.74 d	128.69 d	120.31 d	127.15 d	113.41 d
6'	128.86 d	128.69 d	160.08 d	127.95 d	160.18 d
7'	128.24 d	129.06 d	129.75 d	128.90 d	113.01 d
O-CH ₃	-	-	55.45 d		55.13 d

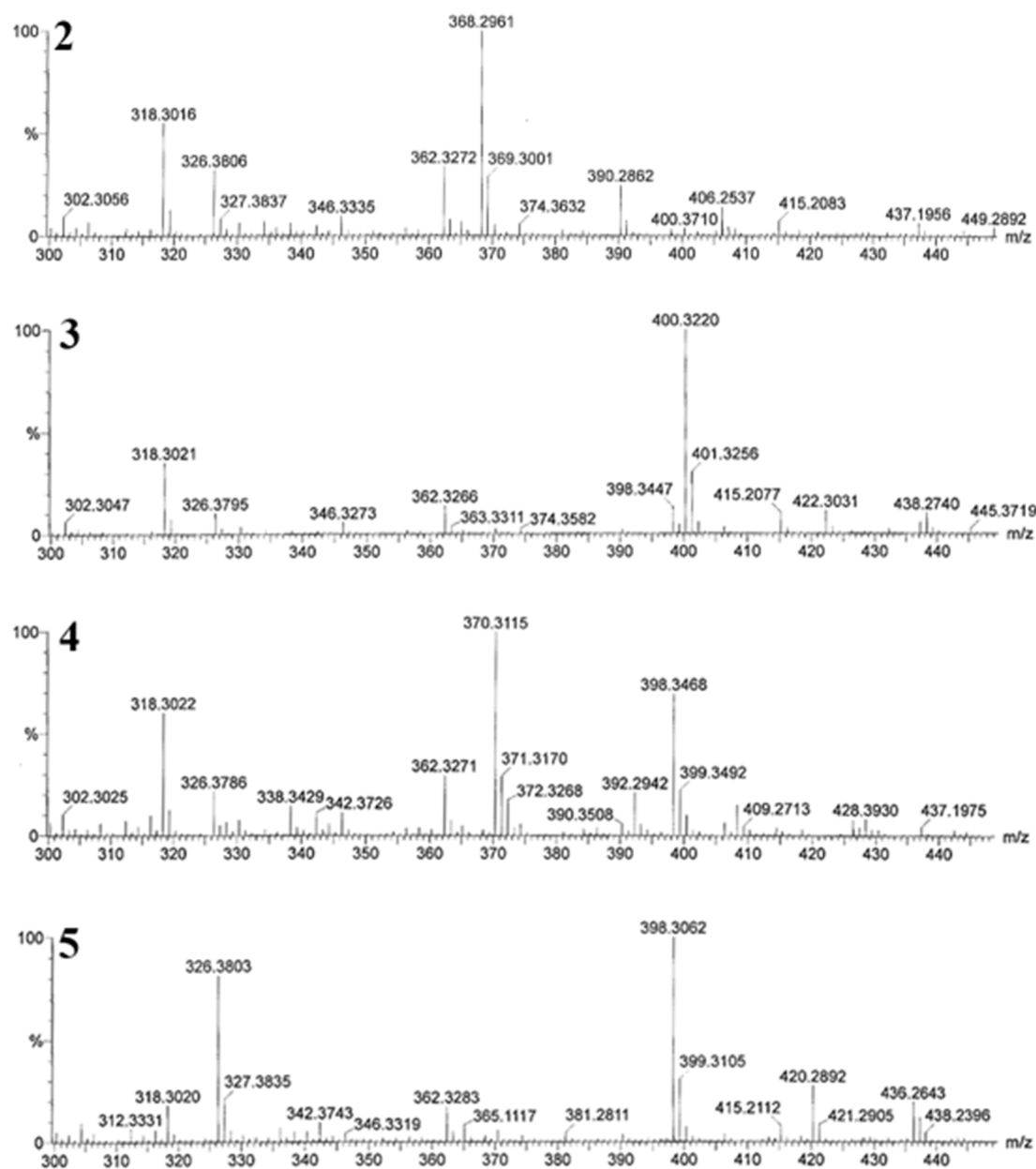


Figure S1. Mass spectra of macamide 2-5.

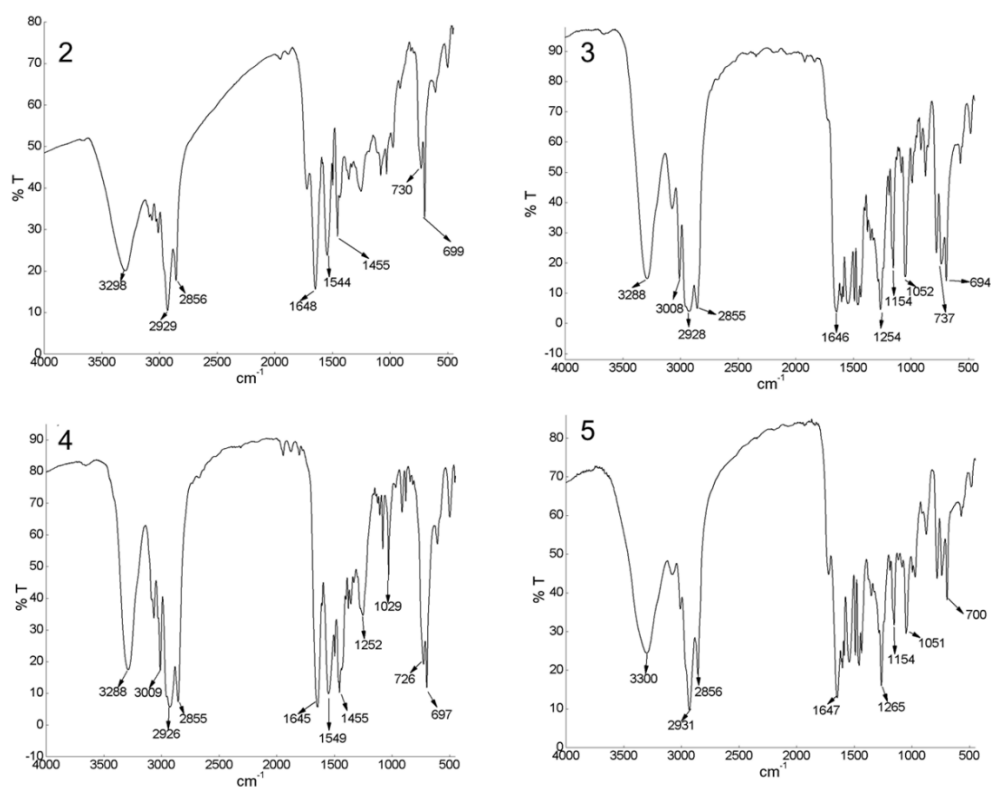


Figure S2. Infrared spectra of macamide 2-5.

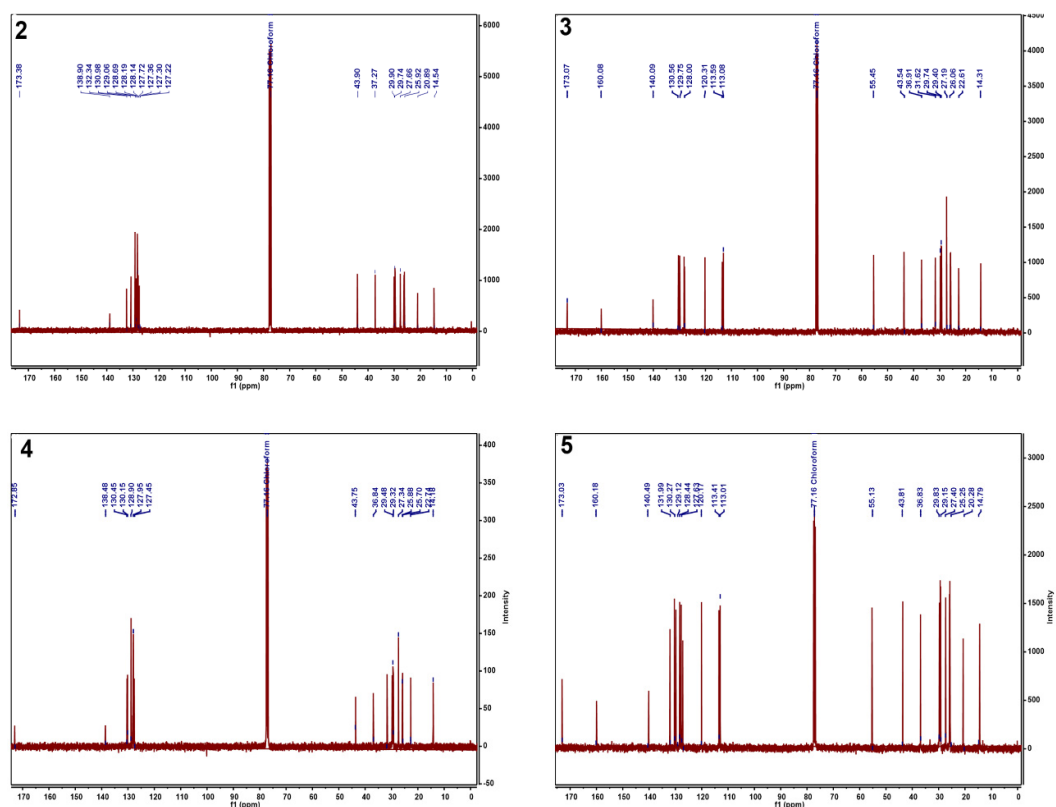


Figure S3. ¹³C NMR spectra of macamide 2-5.

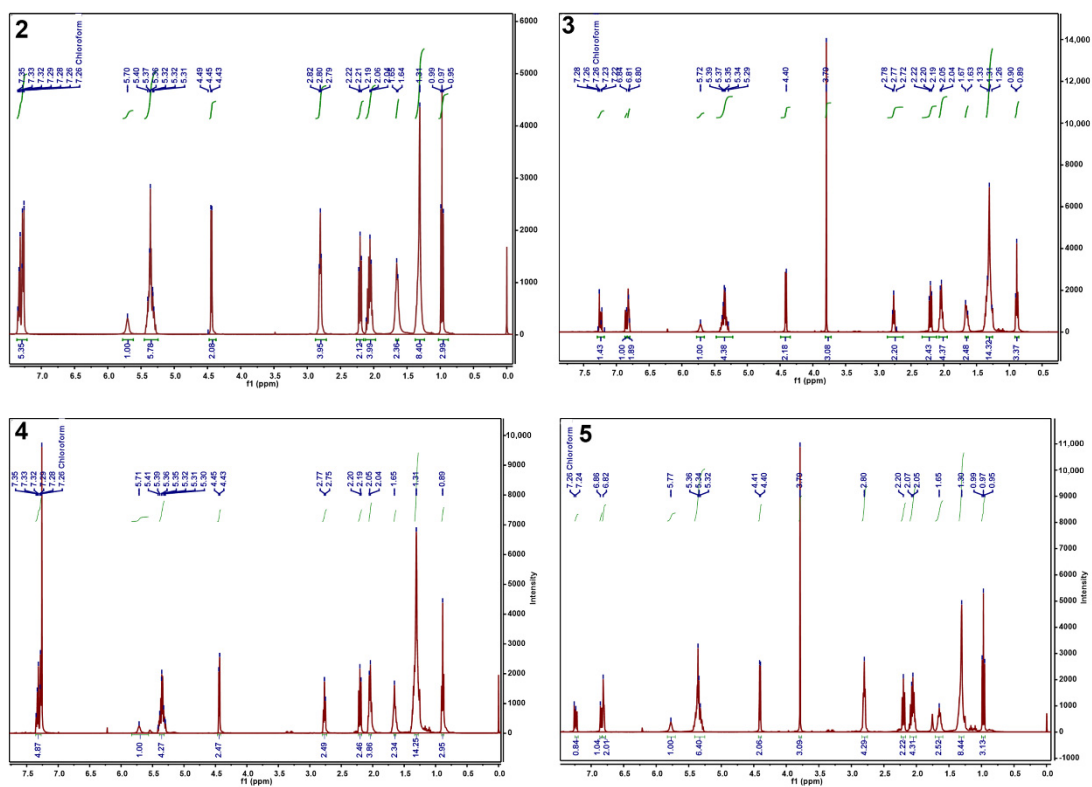


Figure S4. ^1H NMR spectrum of macamide 2-5.