biomass

MDPI

Supplementary Material

Production, Extraction and Partial Characterization of Natural Pigments from *Chryseobacterium* sp. kr6 Growing on Feather Meal Biomass

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Supplementary Table S1

Table S1. Experimental design and results of 2^2 factorial design. [1]

Run	X1; Extraction volume (mL)	X2; Extraction time (min)	Yield (µg/g)
1	-1 (3.8)	-1 (9)	25.9
2	+1 (8.0)	-1 (9)	67.1
3	-1 (3.8)	+1 (50)	22.0
4	+1 (8.0)	+1 (50)	48.7
5	-1.41 (3.0)	0 (30)	47.0
6	+1.41 (9.0)	0 (30)	180.0
7	0 (6.0)	-1.41 (0)	22.5
8	0 (6.0)	+1.41 (60)	36.3
9	0 (6.0)	0 (30)	108.5
10	0 (6.0)	0 (30)	111.2
11	0 (6.0)	0 (30)	111.7
12	0 (6.0)	0 (30)	105.3

[1] Coded values and real values (in parenthesis) for variables (X_1, X_2) and response (Y, pigment yield) for the factorial design.

Supplementary Table S2

Table S2. Model coefficients for pigment extraction from *Chyseobacterium* sp. kr6.

Factor [1]	Coefficient	Standard error	*t*-value	*P*-value [2]
Mean	109.308	1.462	74.76	<0.001 [a]
Volume (L)	64.032	2.070	30.92	<0.001 [a]
Volume (Q)	-11.020	2.321	-4.74	0.017 [a]
Time (L)	-711	2.070	-034	0.753
Time (Q)	-95.598	2.321	-41.18	<0.001 [a]
Volume x Time	-7.252	2.924	-2.48	0.089

[1] L, linear; Q, quadratic.

[2] Superscript letter (a) indicate significant factors at $P<0.05$.

Supplementary Table S3

Table S3. Analysis of variance (ANOVA) for the regression model.

Source of variations	Sum of squares	Degrees of freedom	Mean square	*F*-value
Regression	22.896	3	7.623	15.5
Residue	3.941	8	492	
Total	26.837	11		

F_{tab} = 4.07

Supplementary Figure S1

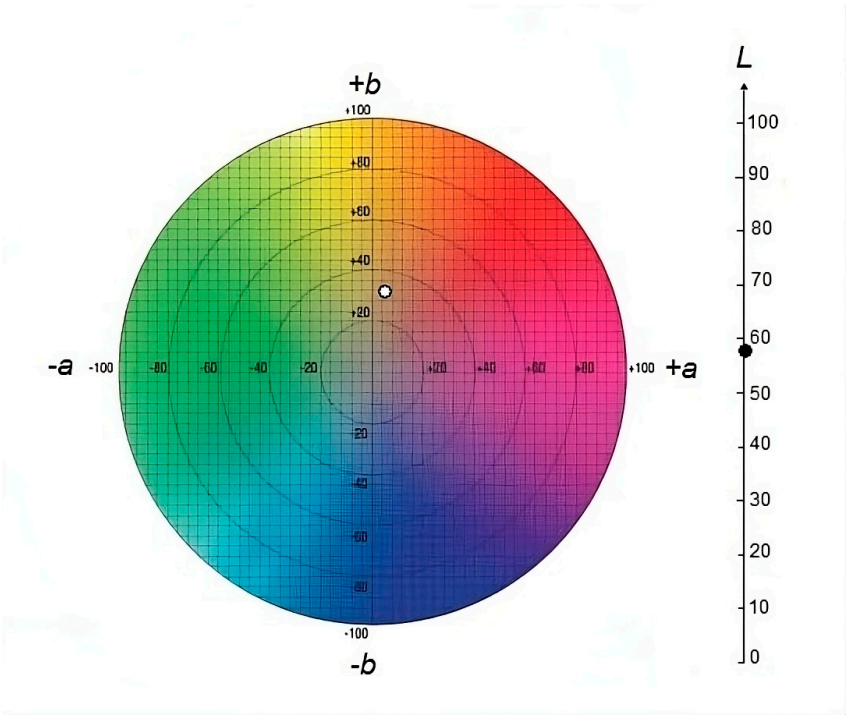


Figure S1. Two-dimensional plot for the pigment of *Chryseobacterium* sp. kr6 for chromatic components a, b (o) and lightness component L (●) according to the CIELAB system.

Supplementary Figure S2

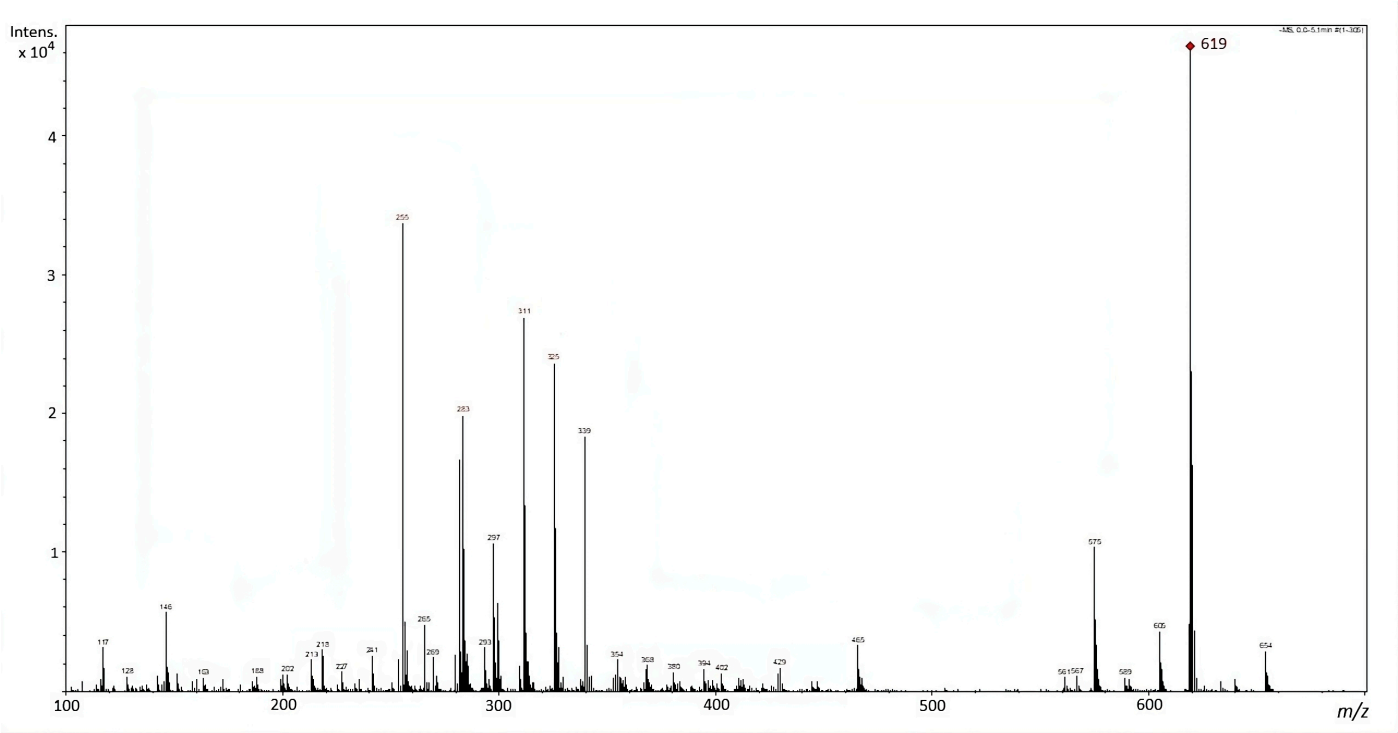


Figure S2. Mass spectrum of the pigment extract from *Chryseobacterium* sp. kr6.

Supplementary Figure S3

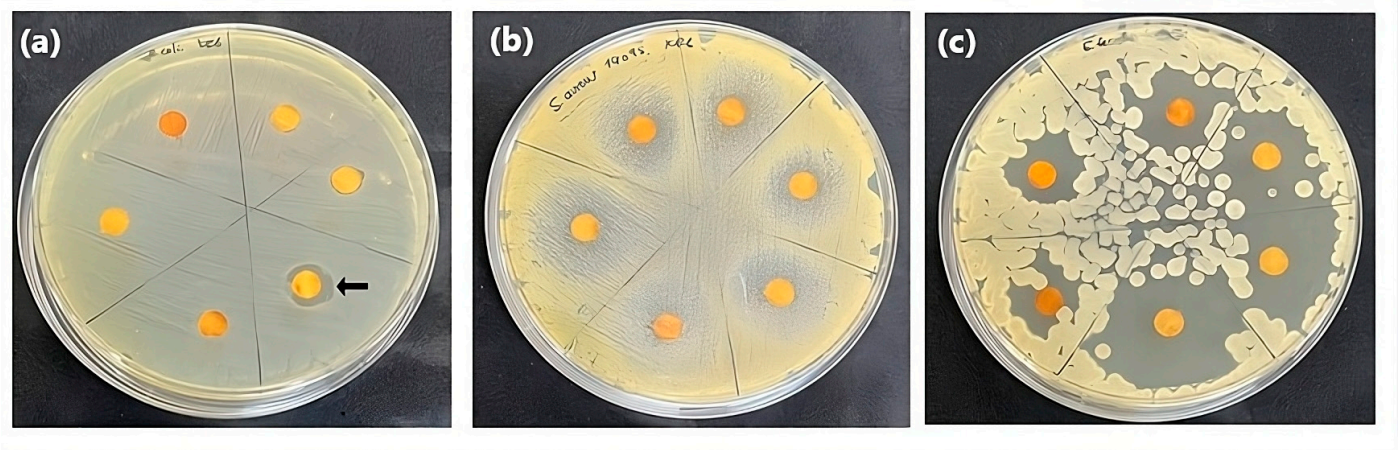


Figure S3. Antimicrobial activity of the pigment extract from *Chryseobacterium* sp. kr6. The pigment was applied onto paper disks in BHI agar plates inoculated with (a) *Escherichia coli*, (b) *Staphylococcus aureus* and (c) *Enterococcus faecalis*. The presence/absence of inhibition growth zones was observed after 24 h incubation at 37°C. Arrow = small inhibition zone against *E. coli*.