

Figure 1. The representative chromatogram of saponarin and the hexacosanol of barley seedlings exposed to differential LED light treatments.

x10 ²	+ TIC Scan 125.D	Policosanol standards
0.8	3 4 8	
0.6		
0.4		
0.2		
0.		17.5 18 18.5 19 19.5 20
x10 ¹	+ TIC Scan 1-1.D	새싹보리
0		3days blue light
x10 ¹	+ TIC Scan 2-1.D	새싹보리
0		3days white light
x10 ¹	+ TIC Scan 3-1.D	새싹보리
0	6 	3days red light
x10 ¹	+ TIC Scan 4-1.D 6	새싹보리
0		3days fluorescent light
x10 ¹	+ TIC Scan 5-1.D	새싹보리
0	^	5days blue light
x10 ¹	+ TIC Scan 6-1.D	새싹보리
0	han	5days white light
x10 ¹	+ TIC Scan 7-1.D	새싹보리
0		5days red light
x10 ¹	+ TIC Scan 8-1.D	새쌒보리
0	h h h h h h h h h h h h h h h h h h h	5days fluorescent light
x10 ¹	+ TIC Scan 9-1.D	새쌍보리
0	Î	7days blue light
x10 ¹	+ TIC Scan 10-1.D 6	새쌍보리
		7days white light
0	25 3 35 4 45 5 55 6 65 7 75 8 85 9 95 10 105 11 115 12 125 13 135 14 145 15 155 16 165 17	17.5 18 18.5 19 19.5 20
x10 ¹	+ TIC Scan 11-1.D	새싹보리
0		7days red light
x10 ¹	+ TIC Scan 12-1.D	새싹보리
0	^	7days fluorescent light
x10 ¹	+ TIC Scan 13-1.D 6	새싹보리
0		9days blue light
x10 ¹	+ TIC Scan 14-1.D	새쌍보리
0	6 	9days white light
x10 ⁻¹	+ TIC Scan 15-1.D	새쌍보리
		9days red light
x10 ⁻¹	+ TIC Scan 16-1.D 6	새쌍보리
	l	에 ㅋ 포 디 9days fluorescent light
0		

1: Eicosanol, 2: Heneicosanol, 3: Docosanol, 4: Tricosanol, 5: Tetracosanol, 6: Hexacosanol, 7: Heptacosanol, 8: Octacosanol, 9: Triacontanol

2'5 3 3'5 4 4'5 5 5'5 6 6'5 7 7'5 8 8'5 9 9'5 10 10'5 11 11'5 12 12'5 13 13'5 14 14'5 15 15'5 16 16'5 17 17'5 18 18'5 19 19'5 20 Counts (%) vs. Acquisition Time (min)

Std.	isoschaftoside		P 22 125
3rd day-blue	19 	MA Am	30
#7 3rd day-red			25
#10 3rd day-white #10	<u>A</u>	- Man Ann	
3rd day- #12 fluoresecent		n Mar Anna	P
Sth day-blue #15	• ••	no n	38
#16 Sth day-red		· · · · · · · · · · · · · · · · · · ·	25
#19 5th day-white	Λ	and and and and	26
#21 5th day- fluorescent	<u>,</u>	no and an and and	20
#23 7th day-blue		n Mr. Ann	24
#25 7th day-red		~ M loom	
#28 7th day-white	<u>_</u>	~ Ml from	
#31 7th day- fluorescent		1 Mulun	
#35 9th day-blue	······································	A mark Arrows	30
#38 9th day-red		~ MM him	
#42 9th day-white		A AMA A	38 36
#48 9th day- fluorescent		~ Mr Aron	

1: Eicosanol, 2: Heneicosanol, 3: Docosanol, 4: Tricosanol, 5: Tetracosanol, 6: Hexacosanol, 7: Heptacosanol, 8: Octacosanol, 9: Triacontanol

x10 ²	+ TIC Scan 125 D					Policosanol standards
1-		8				
0.8-		Ì				
0.4 -		l		9	1	
0.2-					}	
0-)		
	25 3 35 4 45 5 55 6 65 7 75 8 85 9 95 10 105 11 115 12 125 13 Counts (%) vs. Acquisition Time (min)	13.5 14	14.5 15	15.5 16	16.5 17 17.	5 18 18.5 19 19.5 20
x10 ¹	+ TIC Scan B1-1.D	8				Blue light 3days
0-	\				~	
x10 ¹	+ TIC Scan WI-1.D	8				White light 3days
0-	+ TIC Scan R1-1.D				~	Red light 3days
		^			~	
x10 ¹	+ TIC Scan F1-1.D	8				fluorescent light 3days
0-		L			~	
x10 ¹	+ TIC Scan B2-1.D	8				Blue light Sdays
0-					~	Million Ballo Colours
x10 ¹	A A	8 A				White light 5days
04 x10 ¹	+ TIC Scan R2-1.D	8			~	Red light 3days
0-		l_			~	
x10 ¹	+ TIC Scan F2-1.D	8				fluorescent light 5days
0-	A				~	Plue light 7days
x10 ¹	+ TIC Scan B3-1.D	8				blue light Yuays
0-	+ TIC Scan W3-1 D	/			~	White light 7days
xiu ·		Å			~	
01	2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5 8 8.5 9 9.5 10 10.5 11 11.5 12 12.5 13 13 Counts %) vs. Acquisition Time (min)	13.5 14	14.5 15	15.5 16 16	.5 17 17.5	18 18.5 19 19.5 20
x10 ²	+ TIC Scan R3-1.D	8				Red light 7days
0-		_/_			^	
x10 ²	+ πς scan r-s-1.0 Λ	8 A				fluorescent light 7days
0- x10 ⁻²	+ TIC Scan B4-1.D	8			~	Blue light 9days
0-		L			~	
x10 ²	+ TIC Scan W4-1.D	8				White light 9days
0-	·				~~	
x10 ²	+ TIC Scan R4-1.D	8				Red light 9days
0-		/			~	0
x10 ²		8 A				fluorescent light 9days
04	2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5 8 8.5 9 9.5 10 10.5 11 11.5 12 12.5 13 13 Counts (%) vs. Acquisition Time (min)	13.5 14	14.5 15	15.5 16 16	5 17 17.5	18 18.5 19 19.5 20

Figure 2. The chromatogram of isoorientin, isoschaftoside and the octacosanol of wheat seedlings exposed to differential LED light treatments.



Figure 3. Effect of growth periods on the c-glycosylflavone and policosanol content in fluorescent and LED light irradiated barley and wheat sprouts. A and D represent the Saponarin (mg/g DW) and hexacosanol content (μ g/g DW) of barley sprouts. B and C denote the content (mg/g DW) of isoorientin and isoschaftoside in wheat sprouts, while E represents the wheat octacosanol (policosanol) content (μ g/g DW). The pink, white, blue, and red colors represent the sprouts treated with fluorescent, white LED, blue LED and red LED light, respectively. * (P < 0.05), ** (P < 0.001), and *** (P < 0.0001) indicate the statistical significance.

Table S1 List of genes, respective gene and protein IDs, primer sequences, and their annealing temperatures used in quantitative RT-PCR assay

				Annealing
Gene	mRNA ID	Protein ID	Primer Sequences	Temperature
				C°

				Fp- TGTCGAGATAGTTTGTCGGGTGTG		
1	HvOGT1	AK375231.1	BAK06426.1	Rp-	62	
				ATCACGCCGTCGGATGGATATCTG		
2	HvFNSII	HvFNSII AK375824.1	BAK07019.1	Fp- CGTCGTGCATGTCCCTATGT	60	
				Rp- TTAATTAGCGTGACAGCGGC	60	
	HvCHS1	AK248641.1	27.41.1	Fp-TACACACGCAGCATCTCACA	(0)	
3				Rp-CCTTGTCTCACCAGTGACCG	60	
	HvFAR2/					
4	fatty	HORVU7Hr	Fp-GGTATACCTCCTACAGCCTGC		50	
4	acyl-CoA	1G020270.2		Rp-CAGATCCGTCTGCCACAAGT	59	
	reductase					
F	HvFAR3	vFAR3 AK250407.1	250407 1	Fp-AAGATGGACGGCAAAGATGGTA	57	
5			FAR3 AR250407.1	RP-GGCCGTACATTAGGACCG	57	
	HvFAR4	HvFAR4 AK375080.1	FAR4 AK375080.1		FP-TCTCTGCTTCTCCCCAA	FO
6					Rp-AGCCGGTTGATCCAGTGATG	59
7	HvFAR5	HvFAR5 AK375080.1	FAR5 AK375080.1 BAK06275.1	Fp- AAGGGTTGCTTCGACGATGT	57	
/				Rp- CAAAGTTGAATAGCCCGCCG		
8	HvFAR6	HvFAR6 AK374334.1	vFAR6 AK374334.1	Fp-ATGGGTCACGCAAAGCAAAC	50	
				Rp-AGCGTTCACCACCATATCCC	59	
				Fp-TCGCAACTTAGAAGCACTTCCG		
9	HvActin	AK362208.1	BAJ93412.1d	Rp-		
				AAGTACAGTGTCTGGATTGGAGGG		