

Article

Supplementary Materials: Cannabinoids Accumulation in Hemp (*Cannabis Sativa* L) Plants Under LED Light Spectra and Their Discrete Role as A Stress Marker

Md. Jahirul Islam, Byeong Ryeol Ryu, Md. Obyedul Kalam Azad, Md. Hafizur Rahman, Eun Ju Cheong, Jung-Dae Lim, and Young-Seok Lim

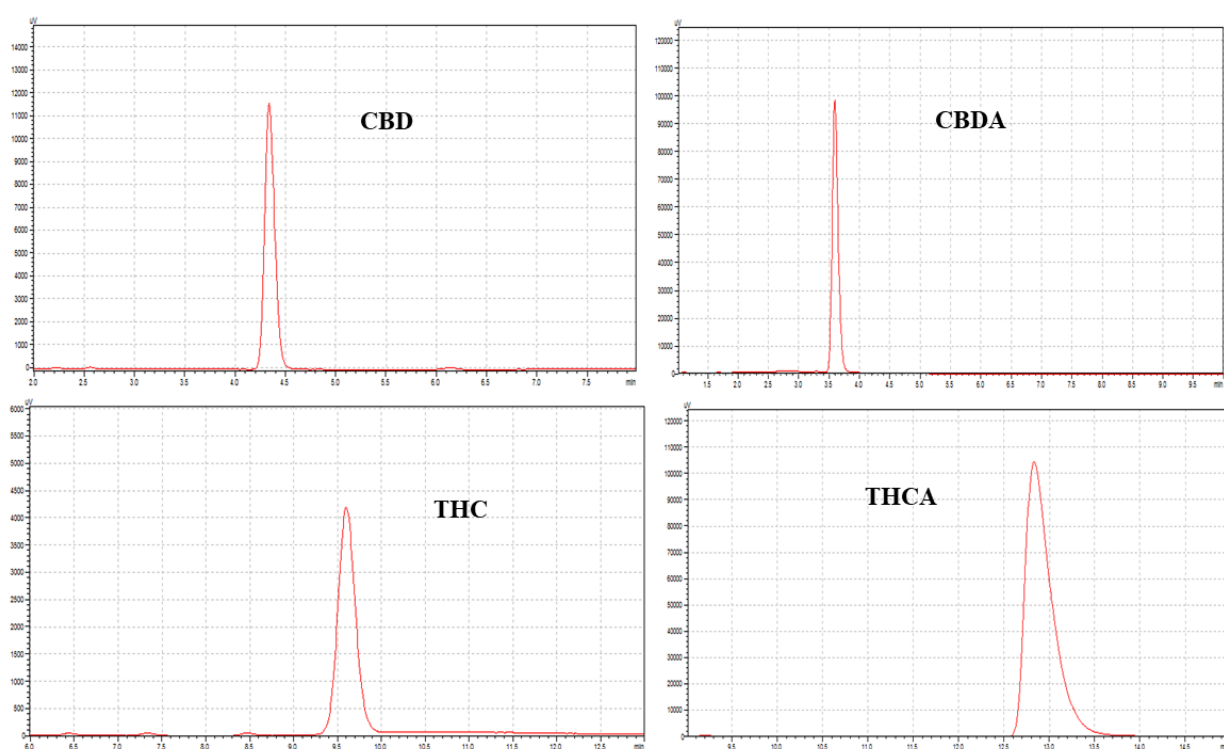


Figure S1. The retention time of CBD (4.34 min), CBDA (3.60 min), THC (9.60 min), and THCA (13.00 min).

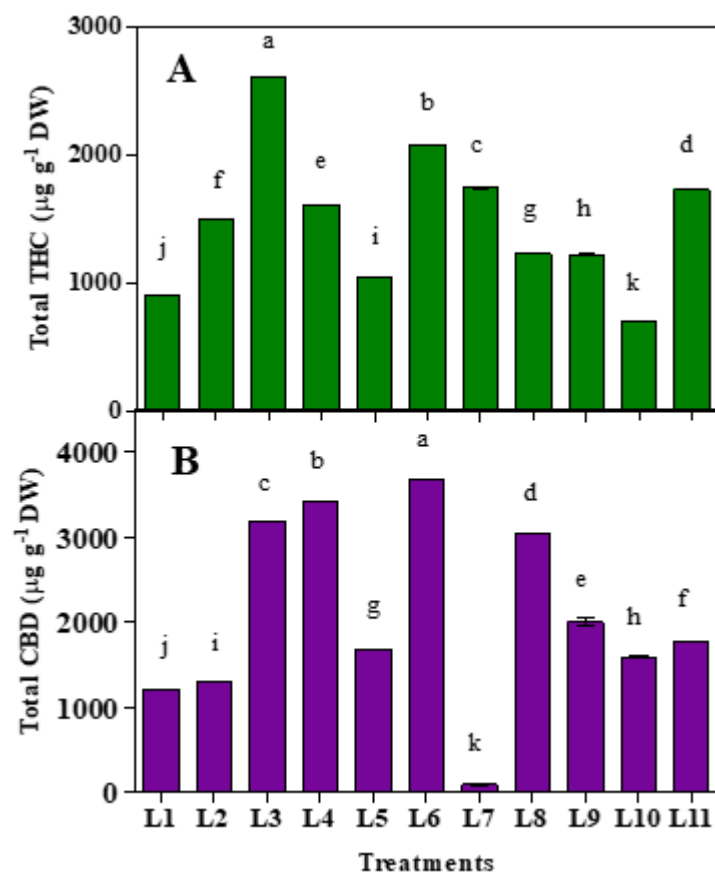


Figure S2. Effect of 20 days exposure to different LED spectra on total THC (THC + THCA; **A**), and total CBD (CBD + CBDA; **B**) of hemp seedlings. Here and subsequent figures: L1, Natural light; L2, White; L3, R₈:B₂; L4, R₇:B₂:G₁; L5, R₇:B₂:FR₁; L6, R₆:B₂:G₁:FR₁; L7, R₅:B₂:W₂:FR₁; L8, R₅:B₂:G₁:FR₁:UV₁; L9, R₆:B₂:FR₁:UV₁; L10, R₄:B₂:W₂:FR₁:UV₁; L11, R₂:B₂:G₂:W₂:FR₁:UV₁. All treatments used a photosynthetic photon flux density of 300 µmol m⁻² s⁻¹. Column height indicates mean, vertical bars indicate standard error means (n = 3), and different letters indicate significant differences at p < 0.05 based on Duncan's multiple range test.

Table S1. The bivariate correlations among the parameters under 11 treatments.

	Pn	E	g _s	WUE	MDA	H ₂ O ₂	SOD	CAT	APX	GPX	TPC	TFC	DPPH	THC	CBD	THCA	CBDA
Pn	1																
E	-0.078	1															
g _s	-0.023	0.985**	1														
WUE	0.699**	-0.552**	-0.507**	1													
MDA	-0.618**	-0.132	-0.165	-0.299*	1												
H ₂ O ₂	0.163	-0.248	-0.280	-0.076	-0.072	1											
SOD	0.537**	-0.264	-0.233	0.526**	-0.236	0.378*	1										
CAT	0.221	-0.301*	-0.363*	0.515**	-0.063	0.013	0.393**	1									
APX	-0.116	-0.230	-0.265	-0.008	0.202	0.353*	0.180	0.299*	1								
GPX	-0.333*	0.287	0.282	-0.157	0.202	-0.209	-0.173	0.277	0.124	1							
TPC	-0.079	-0.031	0.011	-0.063	0.041	0.378*	0.491**	-0.131	0.369*	0.274	1						
TFC	-0.055	-0.029	0.024	-0.023	-0.079	0.324*	0.514**	-0.236	0.131	0.125	0.921**	1					
DPPH	-0.031	0.070	0.115	-0.180	-0.095	0.402**	0.478**	-0.443**	0.062	-0.149	0.789**	0.894**	1				
THC	0.756**	0.044	0.086	0.616**	-0.398**	-0.304*	0.298*	0.279	-0.144	-0.323*	-0.375*	-0.340*	-0.351*	1			
CBD	0.311*	0.352*	0.373*	-0.079	-0.305*	-0.121	-0.110	-0.140	-0.337*	0.042	-0.325*	-0.406**	-0.195	0.119	1		
THCA	0.179	0.084	0.087	-0.030	0.117	0.608**	0.674**	0.141	0.415**	-0.009	0.534**	0.444**	0.496**	0.027	-0.149	1	
CBDA	0.183	0.364*	0.395**	-0.041	0.085	-0.268	0.039	0.053	0.155	0.223	-0.018	-0.256	-0.260	0.359*	0.455*	0.260	1

*. Correlation is significant at the 0.05 level; **. Correlation is significant at the 0.01 level.