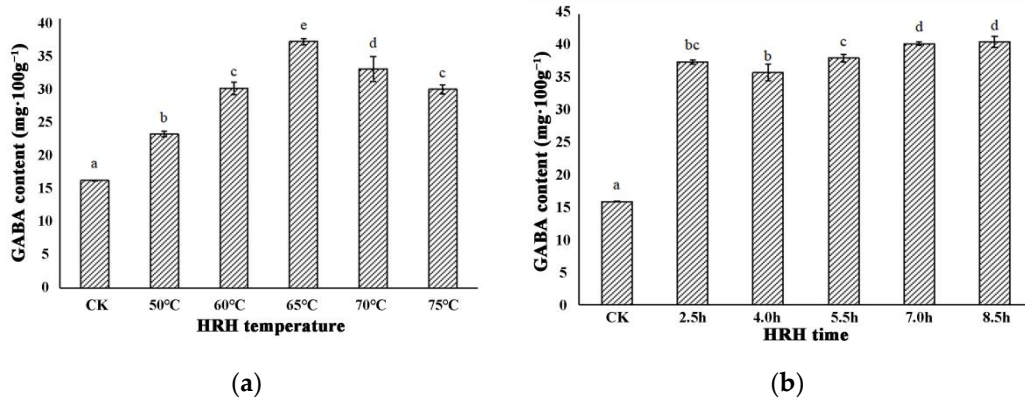


**Table S1.** Description of highland barley cultivars.

Symbol	Cultivar	Seed color	Row type	Symbol	Cultivar	Seed color	Row type
YT1	QTB13	Yellow	Two-row	PS1	GMZ	Purple	Six-row
YT2	QTB25	Yellow	Two-row	PS2	LZH	Purple	Six-row
YT3	1127	Yellow	Two-row	PS3	LZZ	Purple	Six-row
YT4	1128	Yellow	Two-row	PS4	XZDM5658	Purple	Six-row
YS1	ZQ25	Yellow	Six-row	PS5	XZDM5191	Purple	Six-row
YS2	XL22	Yellow	Six-row	PS6	XZDM5122	Purple	Six-row
YS3	ZQ2000	Yellow	Six-row	PS7	XZDM5633	Purple	Six-row
YS4	ZQ320	Yellow	Six-row	PS8	XZDM5505	Purple	Six-row
YS5	ZQ13	Yellow	Six-row	PS9	XZDM5230	Purple	Six-row
YS6	ZQ27	Yellow	Six-row	PS10	XZDM5532	Purple	Six-row
YS7	XZDM4630	Yellow	Six-row	PS11	XZDM327	Purple	Six-row
YS8	XZDM4438	Yellow	Six-row	PS12	XZDM339	Purple	Six-row
YS9	XZDM4550	Yellow	Six-row				



**Figure S1.** Effect of heat and relative humidity (HRH) treatment on GABA content. (a) The effect of HRH temperature on GABA content; (b) the effect of HRH time on GABA content. Different letters denote significant difference among different HRH treatment conditions at the level  $p < 0.05$ . According to the capacity and efficiency of GABA accumulation, 65°C and 2.5h were used as the treatment condition in this experiment.