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Supplementary Material

Combined heat and water stress: a focus on grapevine eco-physiological responses

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Cultivar and references	Water Stress (WS) response	Heat Stress (HS) response	Combined Stress (CS) response
Agiorgitiko (Venios et al., 2025)		↑ gs ↑↓ Pn (M-S) ↓ E	
Assyrtiko (Venios et al., 2025)		↑ gs ↓ E	
Cabernet Sauvignon (Shtein et al., 2021) (Sun et al., 2017) (Hochberg et al., 2015) (Edwards et al., 2011)	↓ gs; E; Ψpd	↑↓ gs (L-M) ↑↓ Pn (L-S) ↑ E ↓ iWUE ↓ Ψpd ↑ = ↓ Fv/Fm (L-M-S)	↓ gs; E; Ψpd
Chardonnay (Tzortzakis et al., 2020)	↑ gs ↓ Pn; Fv/Fm	↑ gs ↓ Pn	
Gewürtztraminer (VanderWeide et al., 2022)	↓ Pn	= gs ↓ Pn	
Jingxiu (Wang et al., 2010)		↓ gs	
Jumeigui (Zha et al., 2016b)		↑↓ Fv/Fm (M-S)	
Kyoho (Zha et al., 2016b)		= ↓ Fv/Fm (M-S)	
Malbec (Galat Giorgi et al., 2019)	↓ gs; Pn; E; Ψpd ↑ iWUE	↓ gs; Pn; E; iWUE ↑ Ψpd = Fv/Fm	↓ gs; Pn; E; Ψpd ↑ iWUE
Maratheftiko (Chrysargyris et al., 2018)	↓ gs; Pn; Fv/Fm	↓ gs; Pn; Fv/Fm	
Mavrodafni (Venios et al., 2025)		↑ gs ↑↓ Pn (M-S) ↓ E	
Merlot (Qiu et al., 2025) (Venios et al., 2025)		↓ gs; Pn; E ↑↓ Pn (M-S) [a]	
Moschofilero (Venios et al., 2025)		↑ gs ↑↓ Pn (M-S) ↓ E	
Muscat (Venios et al., 2025)		↑ gs; Pn ↓ E	
Muscat Hamburg (Qiu et al., 2025)		↓ gs; Pn; E	
Red Globe (Zhang et al., 2018)		↓ gs = ↓ Pn (S-M) ↑ E	
Sauvignon blanc (Venios et al., 2025) (Wegher et al., 2025) (Shtai et al., 2024)	↓ gs; Pn; E	↓ gs; Pn; E ↑↓ Pn (M-S) [a]	↓ gs; Pn; E ↑ Fv/Fm; Ψpd
Savvatiano (Venios et al., 2025)		↑ gs; Pn ↓ E	
Semillon (Greer e Weedon, 2012)		↓ gs	
Shenhua (Zha et al., 2016a)		↑↓ Fv/Fm (M-S)	
Shiraz (Hochberg et al., 2015)		↑ gs ↓ Pn; iWUE	= Pn
Tempranillo (Arrizabalaga-Arriazu et al., 2020)		↑ gs; E ↓ Pn	
Touriga Nacional (Nogales et al., 2020) (Carvalho et al., 2016) (Carvalho et al., 2015)	↓ gs; Fv/Fm ↑ iWUE	↑ gs ↓ iWUE = Fv/Fm	↓ gs ↑ iWUE ↓ Fv/Fm
Trincadeira (Carvalho et al., 2016) (Carvalho et al., 2015)	↓ gs; Fv/Fm ↑ iWUE	↓↑ gs [b,c] ↑ iWUE	↓ gs; Fv/Fm ↑ iWUE
Xynisteri (Tzortzakis et al., 2020)	↓ gs; Pn; Fv/Fm	↓ gs; Pn; Fv/Fm	

Supplementary Figure 1. Comparative summary of cultivar-specific responses to different stress conditions. Different symbols and colors indicate the type of response compared to the control: no difference (green), increase (blue), and decrease (red). The table only considers the types of stress, without including the stress levels. Additional information is provided only when conflicting responses occur within the same type of stress. Water stress (WS); heat stress (HS); combined stress (CS). Parameters: stomatal conductance (gS), net photosynthesis (Pn), transpiration (E), intrinsic water use efficiency (iWUE), pre-dawn water potential (Ψpd), and maximum quantum efficiency of PSII (Fv/Fm). The different letters (L-M-S) indicate light, moderate and severe stress respectively. For Ψpd, the downward arrow indicate a more negative value. [a] indicate different response for the cited article (Venios et al., 2025). [b,c] indicate different documents of the same author (Carvalho et al., 2016a, 2015b). Cultivars are listed in alphabetical order.

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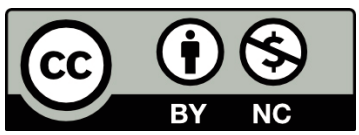
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