Water and nitrogen conditions affect the relationships of $\Delta^{13}C$ and $\Delta^{18}O$ with gas exchange and growth in durum wheat

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Supplementary Material

Figure S1. Relationship between measured and predicted $\Delta^{18}O_s$ values in plants grown under high N. A simplified Péclet model developed by Barbour and coworkers (http://www.ecophys.biology.utah.edu/) was used to predict $\Delta^{18}O_s$ values. Several parameters such as the diffusion fractionation through stomata (32‰) and the boundary layer (21‰), the equilibrium fractionation between C=O and water for carbonyl exchange (27‰) and for the whole leaf biomass (8‰), $p_{ex} \cdot p_x$ =0.38 and the effective length for Péclet effect (8mm) were assumed (Barbour and Farquhar, 2000; Barbour *et al.*, 2000a). The $\delta^{18}O$ of source water, the RH, and the leaf and air temperatures, stomatal and boundary layer conductance and *E* rates measured in our experiment were entered to the model and used for the calculation. Each point represents the high N treatment means for each genotype and water conditions. Each value is the mean of four replicates. The dashed line represents a slope of 1. Measured $\Delta^{18}O_s$ = -3.6 +1.1predicted $\Delta^{18}O_s$; R=0.69.