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Supplementary Material

Effects of organic acids on the formation of the barrier to radial oxygen loss in roots of *Hordeum marinum*

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Fig. S1. Effect of a cocktail (i.e. mixture) of organic acids (acetic, propionic, butyric and caproic acids; each at concentration of 1 mM; total concentration = 4 mM) on *H. marinum* after 4 days of treatment. Control plant on left, plant exposed to a cocktail of organic acids on right. Scale bar = 50 mm.

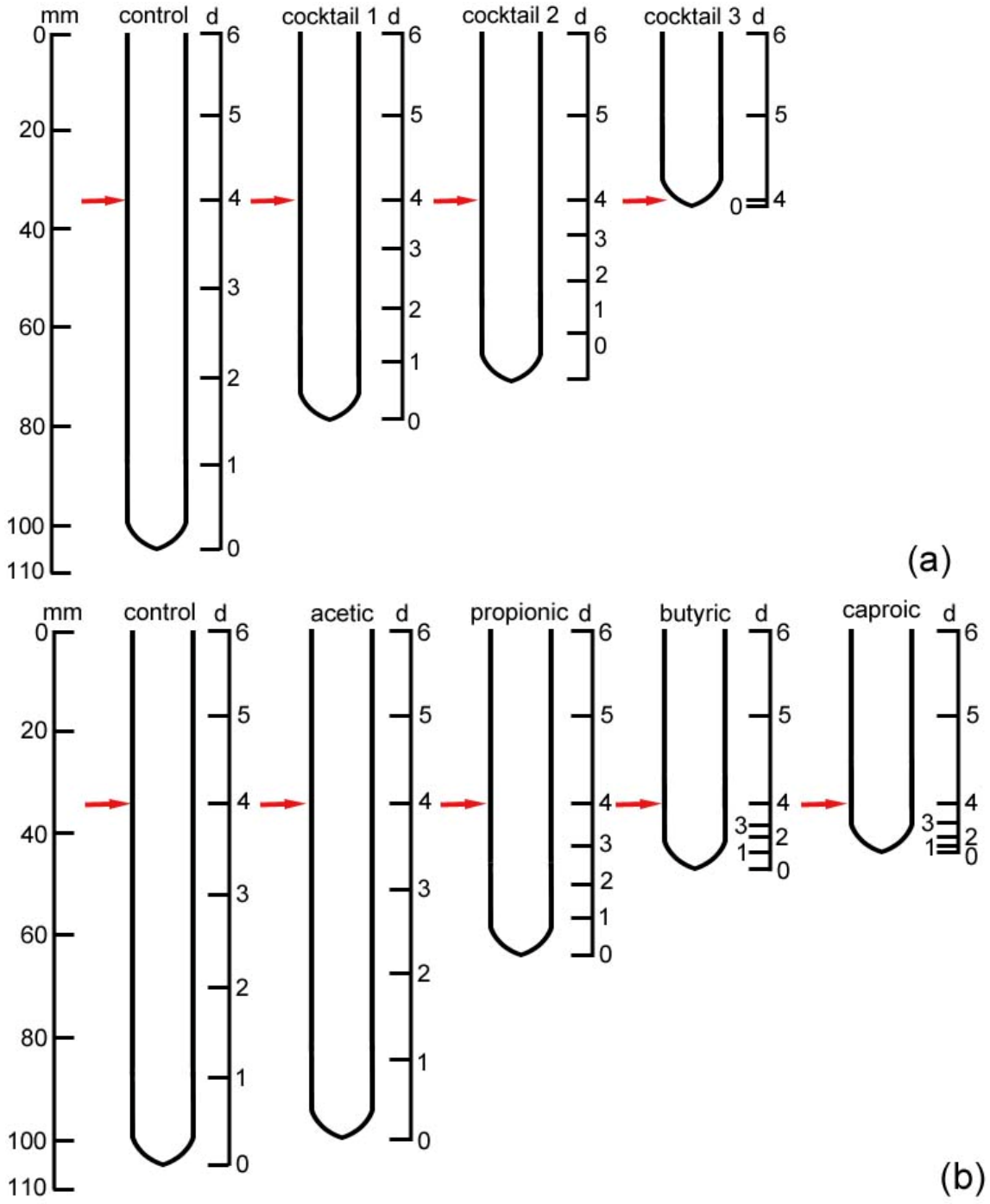

Fig. S2. The growth of roots of *H. marinum* and resulting tissue ages relative to distance behind the root apex. Plants were grown in for 24-28 d in aerated nutrient solution, and were then exposed for four d to: (a) cocktail of organic acids (acetic, propionic, butyric and caproic) at

increasing total concentrations of 0.1, 0.4 or 2 mM; (b) single organic acids: acetic propionic, butyric and caproic each at 0.4 mM. Controls received no organic acids. Nutrient solution was non-bubbled and at pH 6.0, and replaced every 12 h. Scales to the left of the diagrams indicate root length in millimetres. Scales to the right of each root indicate the tissue age in days. Arrows indicate position of the apex at the start of treatments upon transfer from aerated to non-bubbled solution without (control) or with organic acid treatments.