

Effect of infestation by aphids on the water status of barley and insect development

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To compare the effects of aphid infestation with some effects of wounding and drought-stress, several physiological parameters and metabolite concentrations were measured in infested, mechanically wounded or water-stressed young barley plants (*Hordeum vulgare* cv Aramir). Barley plants infested with the greenbug (*Schizaphis graminum*) had lower water potentials and CO₂ assimilation than non-infested plants. Abscisic acid content increased by 55% in leaves after 72 hr of infestation. Water potentials and stomatal resistance of barley plants changed only as a consequence of infestation by the greenbug or by drought-stress. Proline concentration increased in leaves subjected to infestation or drought by 11- and 14-fold, respectively. Leaves with artificial damage showed the same reduction in chlorophyll contents as leaves of drought-stressed plants. Greenbug infestation caused higher chlorosis than other treatments. Contents of soluble carbohydrates and proteins decreased 52 and 38% by infe