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不同阶段亏水处理对温室栽培梨枣树茎液流变化影响的研究

Effects of water deficit at different growth stages on stem sap flux of Pear-jujube trees in greenhouse

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中文摘要：

该文以在日光温室生长的6年生矮化密植成龄梨枣树为试材，试验分别在梨枣树的开花—坐果期、果实膨大期和果实成熟期进行了轻度、中度和重度水分亏缺处理，分别为处理2、处理3和处理4，对照为全生育期充分供水的处理1，研究不同阶段亏水处理对温室栽培梨枣树土壤水分变化和茎液流变化的影响，结果表明：处理2复水后其液流具有明显的补偿效应，处理3和处理4复水后并未出现补偿效应。果实膨大期末的气孔导度和茎液流日变化总体趋势一致，但中午12:00至下午14:00左右，二者存在明显的不同步现象。运用SPSS 11.0软件分析了各处理梨枣树日茎液流量与气象因子的相关关系， 处理1至处理4的 值分别为79.659、85.321、104.922和94.781，均大于$F_{0.95}(3,115)=2.69$，R^2值分别为0.675、0.690、0.732和0.712。亏水处理日茎液流量与对照处理1日茎液流量的比值与土壤相对有效含水量(RAWC)呈线性关系，其相关系数$R^2=0.4489$。

英文摘要：

The effects of different water deficits at different growth stages on stem sap flux of six years old pear-jujube trees in greenhouse were studied. Pear-jujube trees grown in sufficient water supply (T1) and suffered low water deficit (T2), middle water deficit (T3) and serious water deficit (T4) during flowering-bearing fruit, fruit speedy growth and fruit maturing period, respectively. Experimental results illustrated that the weather condition influences stem sap flux in all treatments obviously, visible compensation of stem sap flux in T2 was observed after re-watering, but the compensation was not occurred in T3 and T4. The trends of daily stomatal conductance are uniform with stem sap flux in mass, but the asynchronous phenomena were observed during 12:00 to 14:00 PM and after 16:00 PM. The diurnal changes of stem sap flux were analyzed in all treatments. The multi-relationships among daily stem sap flux of pear-jujube trees and meteorological factors were analyzed for all treatments, the F values are 79.659, 85.321, 104.922 and 94.781 from T1 to T4, respectively, which all are bigger than $F_{0.95}(3,115)=2.69$, the R^2 values are 0.675, 0.690, 0.732 and 0.712 from T1 to T4, respectively. The relationship between the ratio of daily stem sap flux of water deficit treatment and sufficient treatment and relative available soil water content (RAWC) is linear, R^2 is 0.4489.