

非充分供水与充分供水入渗模型参数间关系试验 Experiment on Relations of Infiltration Model Parameter in Non-sufficient and Sufficient Water Supplies

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关键词: 非充分供水 充分供水 Kostiakov三参数模型 入渗参数

摘要: 基于均质土壤的非充分供水与充分供水入渗试验数据, 分析了非充分与充分供水入渗过程之间的关系, 建立了非充分与充分供水入渗Kostiakov三参数模型参数之间的关系。结果表明: 非充分供水积水后入渗过程以充分供水入渗过程为渐近线; 非充分与充分供水入渗参数 $\alpha$ 的比值 $m$ 随着供水强度的增加而增大、随着黏粒含量的增加而增加、随着砂粒含量的增加而减小、随着土干密度的增加而增加、随着初始含水率的增加而减小, 它们之间都较好地符合乘幂函数关系; 非充分供水稳定入渗率等于同条件下的充分供水稳定入渗率; 非充分供水入渗系数 $K_1$ 等于供水强度与稳定入渗率之差。 On the basis of the non-sufficient and sufficient water supplied infiltration test of homogenous soil, the infiltration processes for both non-sufficient and sufficient water supplies were analyzed; the correlations of Kostiakov three model parameters for the non-sufficient and sufficient water supplies were established. The result shows that the ponding infiltration process with non-sufficient water supply accords with asymptotic curve of infiltration process with sufficient water supply; the infiltration parameter ratio  $m$  increases as the three elements of water supply, namely, intensity, clay content of soil grain and soil bulk density augment, while the parameter ratio  $m$  decreases as the two elements of sand content, and moisture content, the steady infiltration rate of non-sufficient water supply equals to steady infiltration rate of sufficient water supply; the infiltration coefficient  $K_1$  of non-sufficient water supply equals to the value of the difference between water supplied intensity of water supply and steady infiltration rate.

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