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秸秆-膨润土-PAM改良材料对砂质土壤饱和和导水率的影响

Effect of straw- bentonite-PAM improved material on saturated hydraulic conductivity of sandy soil

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中文关键词: [秸秆](#) [砂](#) [土壤](#) [秸秆-膨润土-PAM改良材料](#) [饱和和导水率](#)

英文关键词: [straw](#) [sand](#) [soil](#) [straw-bentonite-PAM improved material](#) [saturated hydraulic conductivity](#)

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作者 单位

[孙荣国](#) 1. [西南大学资源环境学院](#), [三峡库区生态环境教育部重点实验室](#), [重庆 400715](#);

[韦武思](#) 1. [西南大学资源环境学院](#), [三峡库区生态环境教育部重点实验室](#), [重庆 400715](#);

[王定勇](#) 1. [西南大学资源环境学院](#), [三峡库区生态环境教育部重点实验室](#), [重庆 400715](#); 2. [重庆市农业资源与环境研究重点实验室](#), [重庆 400716](#)

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中文摘要:

为改善砂质土壤持水状况,设计了由作物秸秆、膨润土和聚丙烯酰胺(PAM)配制的改良材料,以重庆市分布面积较大的冷沙黄泥为研究对象,采用恒定水头入渗双环法,研究了秸秆改良材料对砂质土壤饱和和导水率的影响。结果表明,施用秸秆改良材料能增加砂质土壤的饱和和导水率,并且随着施用剂量的增大,土壤饱和和导水率逐渐增加;随土培时间的延长土样饱和和导水率均出现了先增大后减小的趋势,当土培时间为60 d时土样饱和和导水率达到最大值;添加麦秆改良材料(质量分数为10 g/kg,配方中PAM质量分数为2%)的土样,在培养60 d后其饱和和导水率是对照组的4.97倍,对砂质土壤改良效果最明显。可见,秸秆改良材料可以改善砂质土壤持水状况,对砂质土壤具有改良作用。

英文摘要:

In order to improve the water holding capacity of sandy soil, the improved material that was confected by crop straw, bentonite and polyacrylamide (PAM) was applied. The effect of straw improved material on saturated hydraulic conductivity of sandy soil was studied using the double rings method of constant waterhead infiltration. The tested soil was the sandy yellow soil that is wildly distributed in Chongqing. The results showed that the saturated hydraulic conductivity of sandy soil increased with straw improved materials applying. The saturated hydraulic conductivity of sandy soil increased gradually with the increasing amount of application. The saturated hydraulic conductivity of sandy soil which increased at first and then decreased with the cultivated time reached maximum when the soil cultivated time was 60 d; The improved material of wheat straw (dose of 10 g, PAM content of 2%) worked best whose saturated hydraulic conductivity reached maximum (4.97 times as the control) when the soil cultivated time was 60d. Therefore, the modified straw material is able to improve sandy soil, and this research can provide theoretical basis for applying modified straw materials into sandy soil.

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