

土壤肥料科学

PAM对潮土水分蒸发量的影响

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摘要:

地表蒸发引起土壤水的散失是造成作物低产的重要原因之一。PAM 是众多保水剂中一种, 其具有超强的吸水 and 保水能力, 能够抑制土壤水分的蒸发, 增加土壤含水量, 增强土壤持水功能, 对沙质土壤水分的调控具有重要作用。本文以分布于重庆三峡库区的潮土为研究对象, 研究不同剂量、不同剂型的PAM对土壤蒸发量的影响, 以期为农业灌溉上PAM的推广应用提供理论依据。研究结果显示: PAM能抑制土壤水分的蒸发。对不同剂量的PAM处理, 潮土累计蒸发量较对照减少2.37%~12.459%; 以200mg/kg抗蒸发效果最为明显。对同分子量不同电荷密度剂型的PAM处理, 冷沙黄泥累计蒸发量较对照减小7.34%~17.81%, 以30%抗蒸发效果最好, 对同电荷密度不同分子量剂型的PAM处理, 潮土累计蒸发量分别较对照减小12.25%~18.53%; 以1000万的PAM抗蒸发效果最为明显。

关键词: 聚丙烯酰胺 (PAM) 潮土 土壤蒸发量

Effect of PAM on evaporation of water in alluvial soil

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Abstract:

One of the major reasons of low-yield crops is dissipation of surface soil water evaporation. PAM is one of the insurance agents, its a super-absorbent and water-retention capacity, which can inhibit the evaporation of soil evaporation, increasing soil evaporation, enhance soil water retention function, it plays an important role on the regulation of sandy soil evaporation. In this study, the alluvial soil collected from the Three Gorges Reservoir Region was chosen to figure out the effect of different doses and dosage forms of PAM on the water preserving capacity, so as to provide theoretical evidence for the spread and exploitation of PAM on the agricultural irrigation. The results showed that PAM could inhibit the evaporation of soil evaporation. Compared with the control, the accumulated evaporation of alluvial soil was decreased by 2.37%~12.45%; The difference between different doses of PAM was significant and 200mg/kg was the most prominent dose. PAM with the same molecular weight but different charge density was treated, the accumulated evaporation of alluvial soil was decreased by 7.34%~17.81%, while 40% was the most prominent dosage of alluvial soil, When PAM with the same charge density but different molecular weight was treated, the accumulated evaporation of alluvial soil was decreased by 12.25%~18.53%, while 10 million was the most prominent dosage.

Keywords: Polyacrylamid (PAM) Alluvial soil Soil water evaporation capacity

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