咸淡水交替灌溉下土壤盐分再分布规律的室内实验研究

Laboratory experiment on the redistribution of soil salinity under saline and fresh water alternate irrigation

投稿时间：2006-4-25　　最后修改时间：2006-11-21

稿件编号：20070515

中文关键词：咸水；交替灌溉；电导率(EC)；盐分再分布；钠吸附比(SAR)

英文关键词：saline water; alternate irrigation; electrical conductivity(EC); salinity redistribution; sodium absorption ratio(SAR)

基金项目：国家自然科学基金资助项目(E090703)

作者	单位
管孝艳	(1979-)，男，山东滕州人，主要从事灌溉排水理论与新技术方面的研究。北京中国农业大学水利与土木工程学院，100083。Email:cau_gxy@yahoo.com.cn
杨培岭	(1958-)，男，教授，主要从事灌溉排水理论与新技术方面的研究。北京中国农业大学水利与土木工程学院，100083。Email:yang-pl@163.com
吕烨	中国农业大学水利与土木工程学院，北京 100083;中国水利水电科学研究院，北京 100044

中文摘要：

咸水灌溉是解决目前淡水资源短缺的重要途径。为寻求合理的咸水农田灌溉方法，进行了不同矿化度和不同灌水模式的室内土柱咸淡水交替灌溉模拟试验，分析了咸淡水交替灌溉条件下土壤溶液电导率(EC)值和钠吸附比(SAR)的变化规律。结果表明：两种灌水模式下，灌水结束时土壤溶液EC值在22.5 cm处达到最高，且4 g/L>2 g/L，且与试验初期相比，土壤溶液EC值明显提高，土柱整体积盐明显。灌水模式对土壤溶液EC值的影响大于矿化度；两种灌水模式不同矿化度处理的SAR值变化规律基本一致。

英文摘要：

It is an important way to settle the problem of the shortage of fresh water resources by irrigated with saline water at present. In order to seek the rational method of field saline water irrigation, the soil column experiment under saline and fresh water alternate irrigation with different water qualities and different irrigation modes in laboratory was conducted. And the change regularity of electrical conductivity(EC) value and sodium absorption ratio(SAR) were analyzed under the two irrigation modes. Results show that, under two irrigation modes, the EC values of the soil solution reach highest at 22.5 cm as irrigation finished, and 4 g/L>2 g/L. Compared with the initial stage, soil solution EC values increase obviously, the salt accumulats obviously in the soil column wholly. And the irrigation mode has greater influence on EC values than that on the mineralization of irrigation water. The regularity of SAR shows basically the same laws under different mineralization of the two irrigation modes.