[1]罗茂春,赵 政,夏 令,等.水稻矮秆基因d-ss的遗传分析与克隆[J].厦门大学学报(自然科学版),2013,52(05):684.[doi:10.6043/j.issn.0438-0479.2013.05.019]

LUO Mao-chun,ZHAO Zheng,XIA Ling,et al.Genetic Analysis and Cloning of the Rice Dwarf Mutant d-ss[J].Journal of Xiamen University(Natural Science),2013,52(05):684.[doi:10.6043/j.issn.0438-0479.201

水稻矮秆基因*d-ss*的遗传分析与克隆(PDF)分享

《厦门大学学报（自然科学版）》[ISSN:0438-0479/CN:35-1070/N] 卷: 52卷 期数: 2013年05期 页码: 684 栏目: 出版日期: 2013-08-15

Title: Genetic Analysis and Cloning of the Rice Dwarf Mutant *d-ss*

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关键词: 水稻; 矮秆; 基因定位; 图位克隆

Keywords: rice(*Oryza sativa* L.); dwarf; gene mapping; map-based cloning

分类号: Q 943

DOI: 10.6043/j.issn.0438-0479.2013.05.019

文献标志码: -

摘要: 通过γ射线诱变,从粳稻品种9522 的M_2 代中筛选出一株矮秆水稻(*Oryza sativa* L.)突变体,定名*d-ss*.*d-ss*突变体表现为叶色深绿、短宽的叶片、以及小而圆的籽粒.以*d-ss*突变体与籼稻品种龙特普杂交的F_2 代群体为基因定位群体,利用InDel分子标记将*d-ss*突变位点定位在5号染色体上的InDel 标记ZZ5-6 和ZZ1343之间,物理距离为412 kb.最终通过图位克隆的方法获得了此基因,测序结果表明此基因在编码区发生了两处缺失突变.

Abstract: Rice height character is one of the most important agronomic traits of rice(*Oryza sativa* L.).Generally,the dwarf varieties with proper plant height have a greater harvest and higher lodging resistance.Identifying new useful dwarf mutant and understanding its regulating mechanism is an important subject for practice rice breeding.In this study,the *d-ss*,a mutant of *Oryza sativa*

L.spp.*japonica* cv.9522,was mutagenized by irradiation with ^{60}Co γ-ray.The *d-ss* mutant plants display short stem,dark green leaves,compact panicles,and short,round grains.To map the d-ss locus,an F_2 population generated by crossing between *d-ss* *(japonica*)mutant and Longtepu(*indica*)was analyzed.The *d-ss* locus was mapped to rice chromosome 5,between the two InDel markers,ZZ5-6 and ZZ1343.The region was delimited to about 412 kb.At last,the *d-ss* gene was cloned by map-based cloning.The analysis of sequencing indicated two deletions happened in translated regions of *d-ss* gene.

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