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除草剂Oryzalin诱变西瓜四倍体及倍性鉴定

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Tetraploid Induction of Watermelon with Herbicide Oryzalin and Identification of the Ploidy

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摘要

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摘要 以两个二倍体西瓜自交系为实验材料, 研究除草剂Oryzalin不同滴苗浓度 (30, 40, 50, 60 mg/L) 和不同处理时间 (1, 2, 4, 6 d) 对西瓜四倍体的诱变效果, 同时进行变异植株的外部形态和气孔观察及染色体鉴定。结果表明: 以 50 mg/L 浓度, 2 d 滴苗处理诱变效果最佳, 两个材料四倍体诱变率分别达到15.63%和17.19%。其变异植株通过染色体计数法鉴定得出染色体数为44, 确定为四倍体植株, 植株表现为叶片钝圆而厚, 叶色深绿, 叶缘多锯齿, 花瓣颜色深黄, 花瓣增宽、增厚; 叶片气孔密度明显减小, 保卫细胞体积增大。Oryzalin对不同基因型的四倍体诱变效果具有一定差异。

关键词: 西瓜 Oryzalin 四倍体 诱变

Abstract: Two inbred lines of diploid watermelon (Tyh08 and Thy32) were used for experiment materia1. The mutagenic effect of tetraploid were studied by using herbicide oryzalin as mutagen in different concentrations (30, 40, 50, 60 mg/L) and different treatment time (1, 2, 3, 4 d). The results showed that the mutagenic effect of tetraploid were the best with 50 mg/L oryzalin for 2d in drop seedling and the mutation rates of two lines were up to 15.63% and 17.19%, respectively. The chromosome number of roottip cell of the variant plants was 44 by the chromosome analysis and so they were identified as tetraploid plants. The leaves of the variant tetraploid plants were obtuse, thick, dark green and had zigzag leaf margin. And the petals were deep yellow, broadened and thickened. By Observing from the microscope, it was found that the stomatal frequency of the leaves obviously decreased, the volume of the guard cells increased. There was difference of the mutagenic effect of oryzalin among various genotypes of materials.

Keywords: watermelon oryzalin tetraploid induction

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