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重离子束辐照大豆籽粒当代效应的初步研究

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Title: Preliminary Investigation of Acceptable Heavy Ion Beam Irradiation Dosage Treated to Soybean(Glycine max L.) Seed

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摘要: ?利用我国目前大面积推广的11个大豆品种，选用6个辐照剂量初步研究了重离子束辐照处理大豆籽粒对其M_1代植株出苗率、生育表现、存活率和单粒重的影响。结果表明：重离子辐照处理后，出苗迟缓、真叶发皱、幼苗黄化，出苗期晚于未处理对照4～5 d，而且生长迟缓、苗弱苗小，随着生育进程的推进，植株多数死亡、存活率低。150 Gy剂量处理可增加M_1代单粒重，但过高的辐照剂量存活率低，不利于产生大群体而进行下一代有效的变异选择。建议应用重离子束处理大豆籽粒时，以100 Gy以下辐照剂量为好。

Abstract: ?Superior to conventional irradiation source,heavy ion beam is a new technique in plant mutation breeding,which has been applied in wheat,potato and vegetable.However,little information is available in soybean.Emergence rate,variation in growth and development performance,survival rate as well as single seed size in the first mutation progeny were examined by eleven released cultivars treated with six irradiation dosages.Delayed emergence,crippled cotyledon leaf,yellow and weak seedlings were observed.With the processes of development,more plants died off and thus fewer plants left at maturity.150 Gy increased seed size while super higher irradiation dosage was not effective in producing large population and thus mutation selection.100 Gy was advised for extensive use of heavy ion irradiation in soybean mutation breeding.

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