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# 白燕2号EMS突变体的形态鉴定与遗传变异分析

# Morphological Identification and Genetic Variation Analysis of EMS Mutants from Hexaploid Oat (*Avena sativa*) Cultivar Baiyan 2

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**中文关键词:** 燕麦 甲基磺酸乙酯（EMS）诱变 遗传变异

**英文关键词:** Oat (*Avena sativa*) EMS mutation Genetic variation

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**中文摘要:**

为促进燕麦的遗传改良，采用化学诱变剂甲基磺酸乙酯(Ethyl methane sulfonate，EMS)处理裸燕麦品种“白燕2号”种子,构建燕麦EMS突变体库,对获得的$M^2$代突变体的形态特征进行调查鉴定，估计突变效果并采用内含子切结点引物和长随机引物的PCR技术分析$M^2$代突变体间的遗传多态性。结果显示，所创制的燕麦突变体库的$M^2$代个体间表现出了丰富的遗传变异，变异的总频率为 7.17%。采用15个内含子切接点引物和长随机引物对其中39个突变体株系进行PCR检测，共扩增出99条谱带，其中多态性条带65条，多态性条带比率为65.7%。突变体株系间的遗传相似系数为0.667～0.973，表现出丰富的遗传变异。表明构建的燕麦EMS突变体库具有丰富的突变类型，可用于燕麦重要性状突变体的筛选和候选基因的功能分析。

**英文摘要:**

To promote the genetic improvement of oat, an EMS mutation library of oat was constructed using naked oat cultivar Baiyan 2 as the material. The morphological characteristics of the $M^2$ population were investigated to identify the mutants and the mutation effects in field condition, as the genetic variation among some individuals of the $M^2$ population by PCR with intron spliced junction primers and long random primers as well. The results showed that there were rich genetic variations among the $M^2$ mutants with total variation frequency of 7.17%. A total of 99 fragments were amplified from the genomic DNA of 39 strains of the $M^2$ mutation population with 15 intron spliced junction primers and long random primers. Of which, 65 fragments were polymorphic with a frequency of 65.7%. The genetic similarity coefficients among those $M^2$ mutation individuals ranged from 0.667 to 0.973, which indicated extensive genetic variations among the individuals. These results suggested that rich genetic variations were presented in the oat EMS mutation population, further screening the mutants in the key agronomic traits may greatly facility the functional analysis of candidate genes of key agronomic traits.

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