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大豆细胞质雄性不育系与保持系atp6基因的RNA编辑比较研究

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摘要: 对大豆细胞质雄性不育系NJCMS1A与其保持系NJCMS1B的atp6基因的RNA编辑进行比较研究。结果在不育系NJCMS1A与保持系NJCMS1B的atp6-3基因保守区中均发现2个编辑位点, 但互不相同, 并且导致了氨基酸的不同变化; mtDNA序列分析显示, atp6-3基因转录本保守区在不育系NJCMS1A与保持系NJCMS1B间存在1个碱基的差异; 另外还发现atp6-1, atp6-2和atp6-3的表达在不育系NJCMS1A与保持系NJCMS1B间存在明显差异。

Abstract: The atp6 gene is an important mitochondrial functional gene. The studies on some plant species showed that RNA editing of atp6 gene was related to the cytoplasmic male sterility. In this paper, the comparative studies of RNA editing of atp6 gene between the cytoplasmic male sterile line NJCMS1A and its maintainer line NJCMS1B in soybean (*Glycine max L. Merr.*) were conducted. The results showed that two editing sites were found on the conservative region of the atp6 gene of NJCMS1A and NJCMS1B, but the two editing sites of the atp6 gene of NJCMS1A were different from those of NJCMS1B, and led to the different changes of amino acid. The results of the mtDNA sequence comparison showed that one base difference was found in the conservative region of atp6-3 gene between NJCMS1A and NJCMS1B. In addition, the obvious difference was found on the expression of atp6-1, atp6-2 and atp6-3 between NJCMS1A and NJCMS1B.

参考文献/References:

- [1] Hiesel R, Wissinger B, Schuster W, et al. RNA editing in plant mitochondria[J]. Science, 1989, 246: 1632-1634.
- [2] Malek O, Lattig K, Hiesel R, et al. RNA editing in bryophytes and a molecular phylogeny of land plants[J]. The EMBO Journal, 1996, 15: 1403-1411.
- [3] Araya A, Domec C, Begu D, et al. An in vitro system for the editing of ATP synthase subunit 9 mRNA using wheat mitochondrial extracts[J]. Proceedings of the National Academy of Sciences, 1992, 89: 1040-1044.
- [4] Hemould M, Suharsono S, Litvak S, et al. Male-sterility induction in transgenic tobacco plants with an unedited atp6 mitochondrial gene from wheat[J]. Proceedings of the National Academy of Sciences, 1993, 90: 2370-2374.
- [5] Iwabuchi M, Kyozuka J, Shimamoto K. Processing followed by complete editing of an altered mitochondrial atp6 RNA restores fertility of cytoplasmic male sterile rice[J]. The EMBO Journal, 1993, 12: 1437-1446.
- [6] Howad W, Kempken F. Cell type-specific loss of atp6 RNA editing in cytoplasmic male sterile Sorghum bicolor[J]. Proceedings of the National Academy of Sciences, 1997, 94: 11090-11095.
- [7] 易平, 汪莉, 孙清萍, 等. 红莲型细胞质雄性不育水稻线粒体 atp6 基因转录本的编辑位点研究[J]. 生物化学与生物物理学进展, 2002, 29(5): 729-733. (Yi P, Wang L, Sun Q P, et al. Study on the editing sites in the transcript of atp6 gene of HL-rice mitochondria[J]. Progress in Biochemistry and Biophysics, 2002, 29(5): 729-733.)

- [8] 丁德荣, 盖钧镒, 崔章林, 等. 大豆质核互作雄性不育系 NJCMS1A 及其保持系 NJCMS1B 的选育与验证[J]. 科学通报, 1998, 43(17): 1901-1902. (Ding D R, Gai J Y, Cui Z L, et al. Development and verification of the cytoplasmic-nuclear male sterile soybean line NJCMS1A and its maintainer NJCMS1B[J]. Chinese Science Bulletin, 1998, 43(17): 1901-1902.)
- [9] 李文强, 张改生, 汪奎, 等. 小麦线粒体DNA的高效提取方法[J]. 遗传, 2007, 29(6): 771-775. (Li W Q, Zhang G S, Wang K, et al. An efficient method for isolation of mitochondrial DNA in wheat[J]. Hereditas, 2007, 29(6): 771-775.)
- [10] Pring D R, Chen W, Tang H V, et al. Interaction of mitochondrial RNA editing and nucleolytic processing in the restoration of male fertility in sorghum[J]. Current Genetics, 1998, 33: 429-436.
- [11] Maier R M, Zeltz P, Koszel H, et al. RNA edition in plant mitochondria and chloroplasts[J]. Plant Molecular Biology, 1996, 32: 343-365.
- [12] Areya A, Begu D, Litvak S. RNA editing in plants[J]. Physiologia Plantarum, 1994, 91: 543-550.
- [13] Hanson M R, Sutton C, Luis B. Plant organelle gene expression: Altered by RNA editing[J]. Trends in Plant Science, 1996, 1: 57-64.
- [14] Nakajima Y, Yamamoto T, Muranaka T, et al. A novel orfB-related gene of carrot mitochondrial genomes that is associated with homeotic cytoplasmic male sterility (CMS) [J]. Plant Molecular Biology, 2001, 46: 99-107.
- [15] Balk J, Leaver C J. The PET1-CMS mitochondrial mutation in sunflower is associated with premature programmed cell death and cytochrome c release[J]. The Plant Cell, 2001, 13: 1803-1818.
- [16] Song J, Hedgecock C. A chimeric gene (orf256) is expressed as protein only in cytoplasmic male-sterile lines of wheat[J]. Plant Molecular Biology, 1994, 26: 535-539.
- [17] Saber M, De Paepe R, De Kouchkovsky Y. Complex I impairment, respiratory compensations, and photosynthetic decrease in nuclear and mitochondrial male sterile mutants of Nicotiana sylvestris[J]. Plant Physiology, 2000, 124: 1239-1250.
- [18] Gutierrez S, Sabar M, Lelandais C, et al. Lack of mitochondrial and nuclear-encoded subunits of complex I and alteration of the respiratory chain in Nicotiana sylvestris?mitochondrial deletion mutants[J]. Proceedings of the National Academy of Sciences, 1997, 94: 3436-3441.

相似文献/References:

- [1] 刘章雄, 李卫东, 孙石, 等. 1983~2010年北京大豆育品种的亲本地理来源及其遗传贡献[J]. (darticle.aspx?type=view&id=201301001) 大豆科学, 2013, 32(01):1. [doi:10.3969/j.issn.1000-9841.2013.01.002]
- LIU Zhang-xiong, LI Wei-dong, SUN Shi, et al. Geographical Sources of Germplasm and Their Nuclear Contribution to Soybean Cultivars Released during 1983 to 2010 in Beijing[J]. Soybean Science, 2013, 32(03):1. [doi:10.3969/j.issn.1000-9841.2013.01.002]
- [2] 李彩云, 余永亮, 杨红旗, 等. 大豆质膜转运蛋白基因GmLTP3的特征分析[J]. (darticle.aspx?type=view&id=201301002) 大豆科学, 2013, 32(01):8. [doi:10.3969/j.issn.1000-9841.2013.01.003]
- LI Cai-yun, YU Yong-liang, YANG Hong-qi, et al. Characteristics of a Lipid-transfer Protein Gene GmLTP3 in Glycine max[J]. Soybean Science, 2013, 32(03):8. [doi:10.3969/j.issn.1000-9841.2013.01.003]
- [3] 王明霞, 崔晓霞, 薛晨晨, 等. 大豆耐盐基因GmHAL3a的克隆及RNA载体的构建[J]. (darticle.aspx?type=view&id=201301003) 大豆科学, 2013, 32(01):12. [doi:10.3969/j.issn.1000-9841.2013.01.004]
- WANG Ming-xia, CUI Xiao-xia, XUE Chen-chen, et al. Cloning of Halotolerance 3 Gene and Construction of Its RNAI Vector in Soybean (Glycine max)[J]. Soybean Science, 2013, 32(03):12. [doi:10.3969/j.issn.1000-9841.2013.01.004]
- [4] 张春宝, 李玉秋, 彭宝, 等. 线粒体ISSR与SCAR标记鉴定大豆细胞质雄性不育系与保持系[J]. (darticle.aspx?type=view&id=201301005) 大豆科学, 2013, 32(01):19. [doi:10.3969/j.issn.1000-9841.2013.01.005]
- ZHANG Chun-bao, LI Yu-qiu, PENG Bao, et al. Identification of Soybean Cytoplasmic Male Sterile Line and Maintainer Line with Mitochondrial ISSR and SCAR Markers[J]. Soybean Science, 2013, 32(03):19. [doi:10.3969/j.issn.1000-9841.2013.01.005]
- [5] 卢清瑶, 赵琳, 李冬梅, 等. RAV基因对拟南芥和大豆不定芽再生的影响[J]. (darticle.aspx?type=view&id=201301006) 大豆科学, 2013, 32(01):23. [doi:10.3969/j.issn.1000-9841.2013.01.006]
- LU Qing-yao, ZHAO Lin, LI Dong-mei, et al. Effects of RAV gene on Shoot Regeneration of Arabidopsis and Soybean[J]. Soybean Science, 2013, 32(03):23. [doi:10.3969/j.issn.1000-9841.2013.01.006]
- [6] 杜景红, 刘丽君. 大豆fad3c基因沉默载体的构建[J]. (darticle.aspx?type=view&id=201301007) 大豆科学, 2013, 32(01):28. [doi:10.3969/j.issn.1000-9841.2013.01.007]
- DU Jing-hong, LIU Li-jun. Construction of fad3c Gene Silencing Vector in Soybean[J]. Soybean Science, 2013, 32(03):28. [doi:10.3969/j.issn.1000-9841.2013.01.007]
- [7] 张力伟, 樊颖伦, 牛腾飞, 等. 大豆“冀黄13”突变体筛选及突变体库的建立[J]. (darticle.aspx?type=view&id=201301008) 大豆科学, 2013, 32(01):33. [doi:10.3969/j.issn.1000-9841.2013.01.008]
- ZHANG Li-wei, FAN Ying-lun, NIU Teng-fei, et al. Screening of Mutants and Construction of Mutant Population for Soybean Cultivar “Jihuang13”[J]. Soybean Science, 2013, 32(03):33. [doi:10.3969/j.issn.1000-9841.2013.01.008]
- [8] 盖江南, 张彬彬, 吴璐, 等. 大豆不定胚悬浮培养基因型筛选及基因枪遗传转化的研究[J]. (darticle.aspx?type=view&id=201301009) 大豆科学, 2013, 32(01):38. [doi:10.3969/j.issn.1000-9841.2013.01.009]
- GAN Jiang-nan, ZHANG Bin-bin, WU Lu, et al. Screening of Soybean Genotypes Suitable for Suspension Culture with Adventitious Embryos and Genetic Transformation by Particle Bombardment[J]. Soybean Science, 2013, 32(03):38. [doi:10.3969/j.issn.1000-9841.2013.01.009]
- [9] 王鹏飞, 刘丽君, 唐晓飞, 等. 适于体细胞胚发生的大豆基因型筛选[J]. (darticle.aspx?type=view&id=201301010) 大豆科学, 2013, 32(01):43. [doi:10.3969/j.issn.1000-9841.2013.01.010]
- WANG Peng-fei, LIU Li-jun, TANG Xiao-fei, et al. Screening of Soybean Genotypes Suitable for Somatic Embryogenesis[J]. Soybean Science, 2013, 32(03):43. [doi:10.3969/j.issn.1000-9841.2013.01.010]
- [10] 刘德兴, 年海, 杨存义, 等. 耐酸铝大豆品种资源的筛选与鉴定[J]. (darticle.aspx?type=view&id=201301011) 大豆科学, 2013, 32(01):46. [doi:10.3969/j.issn.1000-9841.2013.01.011]
- LIU De-xing, NIAN Hai, YANG Cun-yi, et al. Screening and Identifying Soybean Germplasm Tolerant to Acid Aluminum[J]. Soybean Science, 2013, 32(03):46. [doi:10.3969/j.issn.1000-9841.2013.01.011]
- [11] 汤复跃, 张磊, 陈培, 等. 大豆M型细胞质雄性不育恢复基因标记定位[J]. (darticle.aspx?type=view&id=200904004) 大豆科学, 2009, 28(04):578. [doi:10.11861/j.issn.1000-9841.2009.04.0578]
- TANG Fu-yue, ZHANG Lei, CHEN Pei, et al. Marker Location for Fertility Restorer Gene of M-Cytoplasmic Male Sterility in Soybean[J]. Soybean Science, 2009, 28(03):578. [doi:10.11861/j.issn.1000-9841.2009.04.0578]
- [12] 吴丽丽, 唐月异, 赵洪锐, 董英山, 李启云, 等. 大豆细胞质COX II基因的分离及序列分析[J]. (darticle.aspx?type=view&id=200806007) 大豆科学, 2008, 27(06):933. [doi:10.11861/j.issn.1000-9841.2008.06.0933]
- WU Li-li, TANG Yue-yi, ZHAO Hong-kun, et al. Isolation and Sequence Analysis of COX II Gene in Soybean Cytoplasm[J]. Soybean Science, 2008, 27(03):933. [doi:10.11861/j.issn.1000-9841.2008.06.0933]
- [13] 汤复跃, 周立人, 程渊, 等. 大豆M型细胞质雄性不育恢复基因SSR标记初步定位[J]. (darticle.aspx?type=view&id=200803005) 大豆科学, 2008, 27(03):383. [doi:10.11861/j.issn.1000-9841.2008.03.0383]
- TANG Fu-yue, ZHOU Li-ren, CHENG Xiao, et al. SSR Marker Location for Fertility Restorer Gene of M-Cytoplasmic Male Sterility in Soybean[J]. Soybean Science, 2008, 27(03):383. [doi:10.11861/j.issn.1000-9841.2008.03.0383]
- [14] 赵丽梅, 王玉民, 孙寰, 等. 大豆细胞质雄性不育恢复基因的SSR标记[J]. (darticle.aspx?type=view&id=200706006) 大豆科学, 2007, 26(06):835. [doi:10.3969/j.issn.1000-9841.2007.06.006]
- ZHAO Li-mei, WANG Yu-min, SUN Huan, et al. IDENTIFICATION OF SSR MARKERS LINKED TO THE FERTILITY RESTORER GENE FOR THE CMS IN SOYBEAN[J]. Soybean Science, 2007, 26(03):835. [doi:10.3969/j.issn.1000-9841.2007.06.006]

[15] 张井勇, 赵丽梅, 孙寰, 等. 大豆不育系育性稳定性研究概况[J]. (darticle.aspx?type=view&id=201504031) 大豆科学, 2015, 34 (04): 712. [doi:10.11861/j.issn.1000-9841.2015.04.0712]

ZHANG Jing-yong, ZHAO Li-mei, SUN Huan, et al. A Review of Fertility Stability in Male Sterility for Soybean [J]. Soybean Science, 2015, 34 (03): 712. [doi:10.11861/j.issn.1000-9841.2015.04.0712]

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