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摘要: 根据实验室测序的大豆线粒体基因组片段设计线粒体细胞色素b(Cytochrome, cob)基因特异引物, PCR扩增获得1 173 bp大豆(JLGM-1B)线粒体cob基因保守区序列。经序列分析, 该基因编码391个氨基酸, A+T含量58.1%, G+C含量41.9%。Southern杂交表明cob基因在栽培大豆线粒体基因组中至少有2个拷贝。氨基酸序列及系统进化树分析表明, 大豆与其它植物的cob基因具有较高的同源性, 与双子叶植物同源性高达98%。其分类地位与传统系统分类地位相吻合, 说明 cob 基因具有较高的保守性, 可以作为分子系统分类学潜在的遗传分化标记。

Abstract: In this study, mitochondrial DNA uncompleted sequence was used to design special prime of mitochondrial cytochrome b gene(cob)and obtained conservation domain of soybean cob gene by PCR amplification.The results showed that cob gene was consisted by 1 173 bp which encoded 391 amino acids, with 58.1% A+T and 41.9% G+C content.Southern blot analysis revealed that more than 2 cob gene copies were found in G.max mitochondrial genome.Amino acid sequence and phylogenetic analysis showed that cob was most similar to the dicotyledon, with 98% identity at the nucleotide level.In conclusion, cob gene is a potential hereditary marker for phyletic classification basing on its highly conservative property.

参考文献/References:

- [1]邵爱华,薛峰,陈葵,等.暗纹东方鲀线粒体ND1及其侧翼tRNA基因的克隆及序列分析[J].苏州科技学院学报, 2007, 24(4):61-66. (Shao A H, Xue F, Chen K, et al.Cloning and sequence Analysis of ND1 and its flanking tRNA genes of mitochondrial from Takifugu fasciatus[J].Journal of University of Science and Technology of Suzhou, 2007, 24 (4):61-66.)
- [2]Biswas S K, Wang L, Yokoyama K, et al.Molecular phylogenetics of the genus trichosporon inferred from mitochondrial cytochrome b gene sequences[J].Journal of Clinical Microbiology,2005,43(10):5171-5178.
- [3]齐兴柱,尹绍武,姜甜甜,等.海南产花鳃鲃细胞色素b基因的克隆及序列分析[J].海南大学学报, 2007, 25(4):397-401. (Qi X Z, Yin S W, Lou T T, et al.Cloning and sequence analyses of cytochrome b gene of Anguilla marmorata?from Hainan [J].Natural Science Journal of Hainan University, 2007, 25(4):397-401.)
- [4]耿荣庆.山羊线粒体DNA细胞色素b基因序列分析[J].草食家畜, 2006, 131(2):32-34. (Geng R Q.Sequence analysis of mitochondrial DNA cytochrome b gene from goat[J].Grass-Feeding Livestock, 2006, 131(2):32-34.)
- [5]Biswas S K, Yokoyama K, Wang L, et al.Typing of candida albicans?isolates by sequence analysis of the cytochrome b gene and differentiation from candida stellatoidea[J]. Journal of Clinical Microbiology, 2001, 39 (4):1600-1603.
- [6]Wang L,Yokoyama K, Miyaji M, etc.Identification, classification, and phylogeny of the pathogenic species exophiala jeanselmei?and related species by mitochondrial cytochrome b gene analysis[J].Journal of Clinical Microbiology, 2001, 39(12):4462-4467.
- [7]Biswas S K, Wang L, Yokoyama K, et al.Molecular analysis of cryptococcus neoformans?mitochondrial cytochrome b gene sequences[J].Journal of Clinical Microbiology, 2003, 41(12):5572-5576.

- [8] Yokoyama K, Biswas S K, Miyaji M, et al. Identification and phylogenetic relationship of the most common pathogenic candida species inferred from mitochondrial cytochrome b gene sequences[J]. Journal of Clinical Microbiology, 2000, 38(12):4503-4510.
- [9] Biswas S K, Yokoyama K, Nishimura K, et al. Molecular phylogenetics of the genus rhodotorula and related basidiomycetous yeasts inferred from the mitochondrial cytochrome b gene[J]. International Journal of Systematic and Evolutionary Microbiology, 2001, 51:1191-1199.
- [10] 田清霞, 盖钧镛. 大豆起源与进化研究进展[J]. 大豆科学, 2001, 20(1):54-59. (Tian Q Z, Gai J Y. A review on the research of soybean origination and evolution[J]. Soybean Science, 2001, 20(1):54-59.)
- [11] 曾秀存, 孙万全, 孟亚雄, 等. 十字花科植物线粒体DNA的提取和纯化[J]. 西北植物学报, 2005, 25(6):1137-1142. (Zeng X C, Sun W C, Meng Y X, et al. Extraction and purification of mtDNA in crucifer[J]. Acta Botanica Boreali-Occidentalia Sinica, 2005, 25(6):1137-1142.)
- [12] 萨姆布鲁克, 拉塞尔. 分子克隆实验室指南(第三版)[M]. 北京: 科学出版社, 2002:487-499. (Sambrook J, Russell D W. Molecular cloning: A laboratory manual[M]. 3rd Edition. Beijing: Scientific Press, 2002:487-499.)
- [13] 文晓英, 张立勋, 刘运发. 以mtDNA细胞色素b基因探讨斑翅山鹑的分类地位[J]. 动物学研究, 2005, 26(1):69-75. (Wen L Y, Zhang L X, Liu S F. Phylogenetic relationship of perdix dauuricae inferred from mitochondrial cytochrome b gene[J]. Zoological Research, 2005, 26(1):69-75.)
- [14] 阚艳荣, 王继文. 家鹅细胞色素b基因序列及系统发育研究进展[J]. 畜禽业, 2005, 187(11):17-19. (Chen Y R, Wang J W. Study on cytochrome b evolution in domestic goose[J]. Libestock and Poultry, 2005, 187(11):17-19.)
- [15] 张俊丽, 高天翔, 韩志强, 等. 三种白鲢线粒体细胞色素b和16S rRNA 基因片段序列分析[J]. 中国水产科学, 2007, 14(1):8-14. (Zhang J L, Gao T X, Han Z Q, et al. Sequence analysis of partial cytochrome b and 16S rRNA genes of three coregonus species[J]. Journal of Fishery Sciences of China, 2007, 14(1):8-14.)
- [16] 朱世华, 郑文娟, 邹记兴, 等. 五种石鲈科鱼类细胞色素b基因序列及分子系统分析[J]. 热带海洋学报, 2006, 25(4):42-45. (Zhu S H, Zheng W J, Zou J X, et al. Molecular phylogenetic analysis of five pomadasysidae fish based on mitochondrial cytochrome b sequences[J]. Journal of Tropical Oceanography, 2006, 25(4):42-45.)
- [17] 陈艺燕, 章群, 任岗, 等. 十种石斑鱼系统发育的线粒体细胞色素b基因序列分析[J]. 海洋科学, 2006, 30(6):12-15. (Chen Y Y, Zhang Q, Ren G, et al. Molecular phylogeny of 10 species of groupers (Serranidae: Epinephelinae) based on mitochondrial cytochrome b gene sequences[J]. Marine Science, 2006, 30(6):12-15.)
- [18] 邵爱华, 郑峰, 吴胜, 等. 暗纹东方鲀mtDNA的分离纯化及其细胞色素b基因分子克隆[J]. 水产科学, 2005, 24(5):4-7. (Shao A H, Zheng F, Wu S, et al. Isolation and purification of mitochondrial DNA and cytochrome b gene cloning in obscure puffer[J]. Fisheries Science, 2005, 24(5):4-7.)
- [19] 何中央, 张海琪, 徐晓林, 等. 乌龟线粒体细胞色素b基因片段的初步研究[J]. 宁波大学学报(理工版), 2005, 18(4):467-470. (He Z Y, Zhang H Q, Xu X L, et al. Preliminary study on partial sequences of mitochondrial DNA cytochrome b gene of Chinemys reevesii[J]. Journal of Ningbo University (NSEE), 2005, 18(4):467-470.)
- [20] 曹丽荣, 王小明, 饶刚, 等. 从细胞色素b基因全序列分析岩羊和山羊、绵羊的系统发生关系[J]. 兽类学报, 2004, 24(2):109-113. (Cao L R, Wang X M, Rao G, et al. The Phylogenetic relationship among goat, sheep and bharal based on mitochondrial cytochrome b gene sequences[J]. Acta Theriologica Sinica, 2004, 24(2):109-113.)
- [21] 王慧娟, 张志敏, 刘中来, 等. 从细胞色素b基因序列差异分析神农架白熊的系统进化关系[J]. 遗传, 2006, 28(10):1237-1241. (Wang H J, Zhang Z M, Liu Z L, et al. A molecular phylogeny of Shennongjia white bear based on mitochondrial cytochrome b gene sequence[J]. Hereditas, 2006, 28(10):1237-1241.)
- [22] 郭文韬. 试论中国栽培大豆起源问题[J]. 自然科学史研究, 1996, 15(4):326-333. (Guo W T. Concerning the origin of soybean cultivation in China[J]. Studies in History of Natural Sciences, 1996, 15(4):326-333.)
- [23] 周新安, 彭玉华, 王国勋, 等. 中国栽培大豆遗传多样性和起源中心初探[J]. 中国农业科学, 1998, 31(3):37-43. (Zhou X A, Peng Y H, Wang G X, et al. Preliminary studies on the centers of genetic diversity and origination of cultivated soybean in China[J]. Scientia Agricultura Sinica, 1998, 31(3):37-43.)
- [24] Shimamoto Y. Polymorphism and phylogeny of soybean based on chloroplast and mitochondrial DNA analysis[J]. Japan Agricultural Research Quarterly, 2001, 35(2):79-84.

相似文献/References:

- [1] 刘章雄, 李卫东, 孙石, 等. 1983~2010年北京大豆育成品种的亲本地理来源及其遗传贡献[J]. (article.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(05):1. [doi:10.3969/j.issn.1000-9841.2013.01.002]
- [2] 李彩云, 余永亮, 杨红旗, 等. 大豆脂转运蛋白基因GmLTP3的特征分析[J]. (article.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(05):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RNAi载体的构建[J]. (article.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(05):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]. (article.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(05):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]. (article.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(05):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]. (article.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(05):28. [doi:10.3969/j.issn.1000-9841.2013.01.007]
- [7] 张力伟, 樊颖伦, 牛腾飞, 等. 大豆“囊黄13”突变体筛选及突变体库的建立[J]. (article.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(05):33. [doi:10.3969/j.issn.1000-9841.2013.01.008]
- [8] 盖江南, 张彬彬, 吴瑶, 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]. (article.aspx?type=view&id=201301009) 大豆科学, 2013, 32(01):38. [doi:10.3969/j.issn.1000-9841.2013.01.009]
- GAI Jiang-nan, ZHANG Bin-bin, WU Yao, et al. Screening of Soybean Genotypes Suitable for Suspension Culture with Adventitious Embryos and Genetic Transformation by Particle Bombardment[J]. Soybean Science, 2013, 32(05):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]. (article.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(05):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]. (article.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(05):46. [doi:10.3969/j.issn.1000-9841.2013.01.011]

[11] 尹田夫, 宋英淑, 刘丽君, 等. 抗旱与不抗旱大豆叶线粒体膜脂肪酸和磷脂组成比较[J]. (article.aspx?type=view&id=199001003) 大豆科学, 1990, 9(01):19. [doi:10.11861/j.issn.1000-9841.1990.01.0019]

[J]. Soybean Science, 1990, 9(05):19. [doi:10.11861/j.issn.1000-9841.1990.01.0019]

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