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关键词： 脂氧酶缺失 (KeySearch.aspx?type=KeyWord&Sel=脂氧酶缺失)； 聚丙烯酰胺凝胶电泳 (KeySearch.aspx?type=KeyWord&Sel=聚丙烯酰胺凝胶电泳)； 杂交后代的筛选 (KeySearch.aspx?type=KeyWord&Sel=杂交后代的筛选)； 大豆 (KeySearch.aspx?type=KeyWord&Sel=大豆)

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摘要： 通过对传统SDS-PAGE电泳技术中样品前处理及制胶技术的改进，开发出了一种能够清晰鉴别Lox-1与Lox-2同工酶的SDS-PAGE电泳快速检测新技术。利用新改进的方法，在289个CS8000（♀）×FJ307(♂) F_2杂交后代中，选拔出Lox-1,-2,-3 同工酶完全缺失的个体27株，以及Lox-1,-3和Lox-2,-3缺失中间材料若干株。证明新改进方法可以缩短杂交后代脂氧酶缺失个体筛选进程，提高筛选精度，降低筛选成本。

Abstract: In this research, through the improvement of the sample pretreatment and confection of the gel, a fast detection method were developed for screening of lipoxygenase(Lox) null individual using sodium dodecyl sulfate polyacrylamide gel electrophoresis(SDS-PAGE) in soybean. By this method, we have screened 27 strains of the Lox-1,-2,-3 null, and some Lox-1,-3 or Lox-2,-3 incompletion lacking individuals from 289 individuals in the F_2(CS8000（♀）×FJ307(♂))generations. The results proved that the method was better in precision, velocity and less costs of the screening. It is significant for selecting the lipoxygenase null individual in quality improvement breeding of soybean.

参考文献/References:
[1]Andre E, Hou K W. The presence of a lipid oxidase in soybean, Glyine soya ?[J]. Comptes Rendus Biologies, 1932, 194: 645-647.
[2]Sessa D J, Rackis J J. Lipid-derive flavors of legume protein products[J]. Journal of the American oil Chemists Society, 1977, 54: 468-473.
[3]Moreira M A, Tavares S R, Ramos V, et al. Hexanal production and TBA number are reduced in soybean seeds lacking lipoxygenase isoenzymes 2 and 3[J]. Journal of Agriculture and Food Chemistry, 1993, 41(1):103-106.
[4]张瑛, 张磊, 吴敬德, 等. 植物脂氧酶同工酶快速检测技术在无腥味大豆育种上的应用研究[J]. 大豆科学, 2003, 22(1): 50-53. (Zhang Y, Zhang L, Wu J D, et al. Study on the technique of analyzing lipoxygenase isozymes for absence of beany flavor mutants in soybean breeding [J]. Soybean Science, 2003, 22(1): 50-53.)

[5]刘渊, 张孟臣, 张彩英, 等. 大豆脂氧酶分析鉴定技术的研究进展及在育种中的应用[J]. 中国农学通报, 2007, 23(7): 101-105. (Liu Y, Zhang M C, Zhang C Y, et al. Progress of analysis and detection methods for soybean lipoxygenase and application in genetics breeding[J]. Chinese Agricultural Science Bulletin, 2007, 23(7): 101-105.)
[6]傅翠真. 大豆脂氧酶缺失体检测方法研究[J]. 大豆科学, 2004, 23(2): 111-113. (Fu C Z. The identification technique of soybean lipoxygenase [J]. Soybean Science, 2004, 23(2): 111-113.)
[7]羽鹿牧太, 高橋将一, 異儀田和典, 等.ダイズ新品種「いちひめ」の育成とその特性[J].九州沖縄農業研究センター報告, 2002, 40: 79-94. (Hajika M, Takahashi S, Igita K, et al. Breeding and characteristics of a new soybean variety (cv. Ichihime)[J]. Bulletin of the National Agricultural Research Center for Kyushu Okinawa Region, 2002, 40: 79-94.)
[8]丁安林, 张艳, 常汝镇, 等. 大豆脂氧酶研究进展[J]. 大豆科学, 1995, 14(1): 67-72. (Ding A L, Zhang Y, Chang R Z, et al. Advances in research of soybean lipoxygenase[J]. Soybean Science, 1995, 14(1): 67-72.)
[9]Kitamura K. Biochemical characterization of lipoxygenase lacking mutants, L-1-less, L-2-less, and L-3-less soybean [J]. Agricultural and Biological Chemistry, 1984, 48: 2339-2346.
[10]Kitamura K, Kumagai T, Kikuchi A. Inheritance of lipoxygenase-2 and genetic relationship among genes for lipoxygenase-1,-2 and -3 isozymes in soybean seeds [J].Japanese Journal of Breeding, 1985, 35: 413-420.

相似文献/References:

[1]王绍东,李远明,刘伟,等.聚丙烯酰胺凝胶电泳快速检测大豆过敏原蛋白Gly m Bd 30 K缺失方法[J]. (darticle.aspx?type=view&id=201104021)大豆科学,2011,30(04):638.[doi:10.11861/j.issn.1000-9841.2011.04.0638]
WANG Shao-dong,LI Yuan-ming,LIU Wei,et al.A Fast Detection Method for Screening of Gly m Bd 30 K Allergen Protein Using Sodium Dodecyl Sulfate Polyacrylamide Gel Electrophoresis in Soybean Seeds[J].Soybean Science,2011,30(03):638.[doi:10.11861/j.issn.1000-9841.2011.04.0638]
[2]王凤敏,秦 君,闫 龙,等.国审高油无腥大豆品种五星2号的选育[J]. (darticle.aspx?type=view&id=201404036)大豆科学,2014,33(04):624.[doi:10.11861/j.issn.1000-9841.2014.04.0624]
WANG Feng-min,QIN Jun,YAN Long,et al.Breeding of High-oil Soybean Cultivar Wuxing 2[J].Soybean Science,2014,33(03):624.[doi:10.11861/j.issn.1000-9841.2014.04.0624]

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