

农学—应用研究

两种遗传背景下小麦Wx近等基因系面粉及面制品色泽研究

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摘要:

为探索不同Wx基因型对面粉及面制品色泽的影响及色泽改良途径,为糯小麦的育种改良提供理论依据,利用‘扬01-2’和‘扬麦17’2种遗传背景下的8种Wx基因型的近等基因系为材料,对8种基因型面粉、面片色泽及色泽主要影响因素多酚氧化酶(PPO)活性进行研究。结果表明,在面粉色泽上,2个背景下8种基因型间总体上无显著差异,其中以aaBBDD和aabbdd 2种基因型面粉色泽略好;在面片色泽及面条感官评价上,2个遗传背景下均以AAbbdd基因型色泽较好,aabbdd基因型色泽较差。面粉多酚氧化酶活性(PPO)检测结果显示,在2个遗传背景下,全缺失型aabbdd均极端高于其它基因型,其原因需深入研究。糯小麦育种需重视对低PPO活性材料的筛选。

关键词: 色泽

Study on Flour and Flour-based Product Colors of Wheat Wx Near-isogenic Lines in Two Different Genetic Backgrounds

Abstract:

To explore the influence of different Wx genotypes on flour and flour-made products' color and improvement measures for darker color. So in this study eight genotypes of Wx near-isogenic lines carrying two different genetic backgrounds ('Yang01-2' and 'Yangmai17') were used as materials to investigate the color of flour and flour sheet and PPO activity of the eight genotypes. Results showed that flour color and flour sheet color were no significant difference among eight genotypes in both two genetic backgrounds generally. However, aaBBDD and aabbdd genotypes were better than the others in the color of flour. In addition, the AAbbdd genotype was often corresponded to brighter color of sheet and noodle, but aabbdd genotype had the darker color of flour-based products in both genetic backgrounds. The PPO activity of aabbdd genotype in both genetic backgrounds was highest and hence. It was probably the main reason resulting in worse sheet color. The high PPO activity and worse color of flour-based product of aabbdd genotype was also probably caused by Wx protein deletion, which should be further discussed.

Keywords: color

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参考文献:

[1] 张伯桥,高德荣,张晓等.糯小麦新品系扬05G68配粉对面条品质的影响[J].江苏农业学报,2009,25(2):242-246.
[2] 孙彩玲.糯小麦与普通小麦混配对面团及面条质构特性的影响[J].山东农业大学学报,2008,39(1):1-6.
[3] 黄兴峰,孙辉,姜薇莉等.糯小麦粉与普通小麦配粉对面条品质的影响[J].粮油食品科技,2006,14(4):1-6.

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- [4] 张艳, 阎俊, 陈新民等. 糯小麦配粉对普通小麦品质性状和鲜切面条品质的影响[J]. 麦类作物学报, 2007, 27(5): 803-8.
- [5] Epstein J, Morris C F, and Huber K C. Instrumental texture of white salted noodles prepared from recombinant inbred lines of wheat differing in three granule bound starch synthase (Waxy) genes [J]. J Cereal Sci, 2002, 35: 51-64.
- [6] Guo G, Jackson D S, and Graybosch R A, et al. Asian salted noodle quality: Impact of amylose content adjustments using waxy wheat flour [J]. Cereal Chem, 2003, 80: 437-445.
- [7] 覃鹏. 糯小麦粉的理化性质及添加比例对面包、中国干白面条和馒头品质的影响[D]. 安徽合肥: 安徽农业大学, 2007年.
- [8] Lee M R, Swanson B G, and Baik B K. Influence of amylose content on properties of wheat starch and breadmaking quality of starch and gluten blends [J]. Cereal Chem, 2001, 78(6): 701-706
- [9] Jinhee Y, William L K, Jerry W J. Effects of Waxy Wheat Flour and Water on Frozen Dough and Bread Properties[J]. Food Engineering and Physical Properties, 2009, 74(5): 278.
- [10] 宋建民, 刘爱峰, 尤明山等. 糯小麦配粉对淀粉糊化特性和面条品质的影响[J]. 中国农业科学, 2004, 37(12): 1838-1842.
- [11] 刘爱峰, 宋建民, 赵振东等. 糯小麦配粉对面团流变学特性和面包烘烤品质的影响[J]. 中国农业科学, 2004, 37(6): 902-907.
- [12] 苏东民, 陈晨, 魏雪芹等. 糯小麦配粉对面团流变学特性和馒头品质的影响[J]. 河南工业大学学报, 2008, 29(2): 1-6.
- [13] 张艳, 闫俊, H.Yoshida. 中国面条的标准化实验室制作与评价方法研究[J]. 麦类作物学报, 2007, 27(1): 158-165.
- [14] Hatcher D W, Kruger J E. Distribution of polyphenol oxidase in flour millstreams of Canadian common wheat classes milled to three extraction rate. Cereal Chemistry, 1993, 70(1): 51-55.
- [15] Park W J, Shelton D R, and Peterson C J, et al. Variation in polyphenol oxidase activity and quality characteristics among hard white wheat and hard white wheat samples. Cereal Chemistry, 1997, 74(1): 7-11.
- [16] 葛秀秀, 何中虎, 杨金, 张歧军. 我国冬小麦品种多酚氧化酶活性的遗传变异及其与品质性状的相关分析[J]. 作物学报, 2003, 29(4): 481-485.
- [17] 胡瑞波, 田纪春. 鲜切面条色泽影响因素的研究[J]. 中国粮油学报, 2004, 19(6): 19-22.

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2. 艾启俊, 徐文生. 干枣制作蜜枣过程中色泽变化的研究[J]. 中国农学通报, 2004, 20(1): 146-146