

[41] 包灵丰,林纲,赵德明,等. 不同播期与收获期对水稻灌浆期、产量及米质的影响[J]. 华南农业大学学报,2017,38(2):32-37.

[42] Panda B B, Badoghar A K, Sekhar S, et al. Biochemical and molecular characterisation of salt-induced poor grain filling in a rice cultivar[J]. *Funct Plant Biol*, 2015, 43(3):266-277.

[43] 张自常,李永丰,杨霞,等. 干湿交替灌溉下不同稗草种对水稻产量及生理特性的影响 [J]. 应用生态学报,2015,26 (11):3 389 – 3 397.

[44] 张自常,谷涛,李永丰,等. 不同氨水平下不同种稗草对水稻产量形成的影响[J]. 应用生态学报,2016,27(11):3 559-3 568.

[45] 陈展,王效科,谢居清,等. 水稻灌浆期臭氧暴露对产量形成的影响[J]. 生态毒理学报,2007,2(2):208-213.

[46] 范桂枝,蔡庆生,朱建国. CO₂ 浓度升高对水稻灌浆期茎鞘中碳水化合物代谢及其产量的影响[J]. 中国农学通报,2008,24(10): 272-275.

[47] Yang J, Zhang J. Grain-filling problem in ‘super’ rice[J]. *J Exp Bot*, 2009, 61(1): 1.

[48] Yang J, Peng S, Gu S, et al. Changes in activities of three enzymes associated with starch synthesis in rice grains during grain filling[J]. *Acta Agronomica Sinica*, 2001, 27(2):157-164.

[49] Xu J J, Zhang X F, Xue H W. Rice aleurone layer specific OsNF-YB1 regulates grain filling and endosperm development by interacting with an ERF transcription factor [J]. *J Exp Bot*, 2016, 67(22): 6 399-6 411.

[50] Zhu T, Budworth P, Chen W, et al. Transcriptional control of nutrient partitioning during rice grain filling [J]. *Plant Biotechnol J*, 2003, 1 (1):59.

[51] Wang E, Wang J, Zhu X, et al. Control of rice grain-filling and yield by a gene with a potential signature of domestication [J]. *Nat Genet*, 2008, 40(11): 1 370.

[52] 杜康兮,江青山,徐培洲,等. 水稻籽粒灌浆突变体 *gef1* 的鉴定及其基因定位[J]. 科学通报,2016,61(25):2 800-2 810.

[53] 朱立楠,刘海英,孙璐璐,等. 水稻灌浆过程中胚乳异淀粉酶基因家族表达特性及其与淀粉含量间关系分析 [J]. 中国水稻科学, 2015,29(5):528-534.

[54] Ishimaru T, Hirose T, Matsuda T, et al. Expression patterns of genes encoding carbohydrate-metabolizing enzymes and their relationship to grain filling in rice (*Oryza sativa* L.): comparison of caryopses located at different positions in a panicle [J]. *Plant Cell Physiol*, 2005, 46(4): 620.

[55] Takai T, Fukuta Y, Shiraiwa T, et al. Time-related mapping of quantitative trait loci controlling grain-filling in rice (*Oryza sativa* L.)[J]. *J Exp Bot*, 2005, 56(418): 2 107-2 118.

[56] Liu E, Liu X, Zeng S, et al. Time-course association mapping of the grain-filling rate in rice (*Oryza sativa* L.)[J]. *Plos One*, 2015, 10(3): e0119959.

Research Progress on Influence Factors of Rice Grain Filling and its Related Genes and Proteins

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Abstract: Grain filling is a key step in determining the yield potential and grain quality of rice, which is directly related to the seed setting rate and 1 000-grain weights. Rice grain filling is influenced by many factors, including the inherent characteristics of rice cultivar, plant hormones and environmental factors. At the molecular level, grain filling is also regulated by the related enzymes and genes during starch synthesis and transportation. Research progress on influence factors and related proteins and genes of rice grain filling were reviewed in the paper.

Key words: rice; grain filling; influence factors

· 综合信息 ·

河南省 2017 年审定通过的水稻新品种

审定编号 (豫审稻)	品种名称	类型	选育单位	品种来源	全生育期 (d)	区试产量 (kg/667m ²)	生试产量 (kg/667m ²)
2017001	信粳糯 631	粳型常规糯稻	河南省信阳市农业科学院	皖稻 68/ 信粳 64	154.0	624.65	602.30
2017002	豫农粳 11 号	粳型常规稻	河南农业大学、河南信阳五斗坝有机黑米有限公司	方欣 4 号 /20106	152.5	596.95	611.50
2017003	连 8 优 3 号	粳型三系杂交稻	江苏金万禾农业科技有限公司、河南信阳市浉河区龙丰种业批发总汇	连 8A × 云 R3	152.5	643.55	618.80
2017004	瑞两优 1576	籼型两系杂交稻	安徽国瑞种业有限公司	瑞丰 15S × GR076	142.0	632.95	629.50
2017005	Y 两优 358	籼型两系杂交稻	天津天隆科技有限公司	Y58S × R358	146.0	641.60	643.70

(中稻宣)