

研究论文

## ABA与GA对水稻籽粒灌浆的调控

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**摘要** 灌浆初期籽粒中ABA(脱落酸)含量( $\text{ng g}^{-1}\text{FW}$ )和ABA与GA(赤霉素)的比值, 强势粒高于弱势粒, 籽粒充实度好的组合高于籽粒充实度差的组合。开花后2天, 喷施外源ABA, 籽粒中ABA含量和ABA/GA增大, 喷施外源GA后籽粒中GA含量增加, ABA/GA减小。低浓度(15mg/L)ABA处理后, 灌浆初期籽粒中ADPG焦磷酸酶和淀粉合成酶活性及淀粉含量增加, 可溶性糖含量减少; 弱势粒灌浆速率增大, 到达最大灌浆速率的时间提前, 物质运转率、结实率和粒重提高; 高浓度(30 mg/L) ABA和高、低浓度(20和40 mg/L)GA处理后结果则相反。表明在灌浆初期适当提高籽粒中ABA含量和ABA与GA比值, 有促进水稻籽粒灌浆的作用。

**关键词** [水稻](#) [脱落酸](#) [赤霉素](#) [籽粒灌浆](#)

分类号

## Regulation of ABA and GA to the Grain Filling of Rice

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**Abstract** ABA (Abscisic acid) content ( $\text{ng g}^{-1}\text{FW}$ ) and the ratio of ABA to GA (Gibberellin) in strong potential grains or in the grains of the combination with good plumpness were higher than those in weak potential grains or in the grains of the combination with poor plumpness at early filling stage. Spraying exogenous ABA on the second day from anthesis increased ABA content and the ratio of ABA to GA, and spraying GA increased GA content and reduced the ratio in the grains. Low concentration (15mg/L) ABA treatment raised ADP-glucose pyrophosphorylase and starch synthase activities and starch content, and reduced soluble sugar content in grains at early filling stage, and increased grain filling rate, and shortened the time reaching the maximum filling rate, and promoted matter mobilization from stems and sheaths and raised seedsetting percentage, filled grain percentage and grain yield. The results were reversed for the treatments of high concentration (30 mg/L) ABA as well as both low and high concentration GA (20 and 40mg/L respectively). It was suggested that properly raising ABA content and the ratio of ABA to GA in the early developing grains played a role in promoting the grain filling of rice.

**Key words** [Rice](#) [Abscisic acid](#) [Gibberellin](#) [Grain filling](#)

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