

Rice Grain Chalkiness Is Negatively Correlated with Root Activity During Grain Filling [PDF]

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摘要: Field and pot experiments were conducted using indica rice varieties with differential chalkiness. There were significant differences in root activity among the varieties. The percentages of chalky grains and chalky area were both negatively correlated with root activity expressed as α -naphthylamine oxidation ability (RA) per gram of fresh root (RA_{fw}), RA per spikelet (RA_{grn}), or RA per sink capacity (RA_{sink}). The RA_{sink} was more closely related to chalkiness than RA_{fw} and RA_{grn} when varieties differed greatly in panicle size and grain weight. Application of N03--N fertilizer at heading resulted in higher root activity and reduced chalkiness. Application of 30 mg/L NaN₃ (respiration inhibitor) resulted in reduced root activity and increased chalkiness for one variety 'GD9501', but for the other variety 'Qinluai' was in reverse. The percentages of chalky grains and chalky area were negatively correlated with root activity at 10 days after heading under different chemical treatments ($r = -0.8567^*$ and $r = -0.9211^{**}$, respectively).

关键词: chalkiness; root activity; nitrate nitrogen; sodium azide; rice (*Oryza sativa*)

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