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Effects of Gibberellic Acid Applied at Different Flowering Stages on Agronomic Traits and yields of Hybrid Rice Parental Lines

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Abstrak

Gibberellic acid (GA3) application in hybrid rice seed production plays a vital role in increasingseed yield; however, improper use of GA3may affect diversely the growth of hybrid parental lines.Thisstudy aimed to investigate the effects of GA3application at different flowering stagesonagronomic traits and seed yieldof hybrid parental lines.A micro-crossing plot experiment was employed for A line multiplication (HCSA/HCSB) under five treatments: applying GA3at 0%, 10%, 30% and 50% panicle heading stagesand not applying GA3. The results indicated flag leaf length, number of internodes, length of base internode, spikelets per panicle,total dry biomass of both lines, panicle length of HCSAline and seed setting rate of HCSBlinewere not significantlydifferent amongthe treatments. However, applying GA3at 10% panicle heading to 50% flowering stagesignificantly increased plant height, length of 1st, 2nd,and 3rdupperinternodes, total length of these three upper internodesandpanicle exsertion rate of these lines.Interestingly, applying GA3at 30% panicle heading stage enhancedA line to producesignificantly higher panicle exsertion, stigma exsertion, andseed setting rates, ultimately leading to the highest seed yieldof A line, whileapplying GA3at0% panicle headingstage slightly reducedpanicle exsertion rate, and produced lowerseed yieldof both parental lines.These results suggest that applying GA3 at 30% panicle heading stage can be aneffective methodfor increasing seed yieldofA line.A verification testis necessary to confirm the present results.