



不同温度下外施6-BA和ABA对棉花 (*Gossypium hirsutum* L.) 产量和纤维品质的影响

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Effect of 6-BA and ABA on Cotton (*Gossypium hirsutum* L.) Yield and Fiber Quality under Different Temperature Conditions

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摘要

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摘要 以棉纤维比强度高、比强度中等的美棉33B 2个品种为材料, 于2006—2007年在江苏南京设置大田分期播种试验, 使棉铃发育处于不同温度条件, 于棉株7~9果枝第1、2果节棉铃开花时喷施6-苄基腺嘌呤(6BA)和脱落酸(ABA), 研究不同的铃期日均最低气温条件下6-BA和ABA对棉花产量和纤维品质的影响。结果表明: 由晚播造成的低温降低了棉花产量及纤维品质。外施6-BA、ABA对棉株中部果枝铃重和纤维品质影响最大。正常播期下, 外施6-BA可增加中部果枝棉铃铃重, 外施ABA降低铃重, 但二者对其纤维品质影响较小; 迟播时, 外施6-BA可提高中部果枝棉铃铃重, ABA处理的作用则相反, 二者均可提高纤维长度和比强度、优化麦克隆值。不同的温度条件下, 外施6-BA均提高了单株铃数、单株平均铃重和皮棉产量, 外施ABA则降低了棉花单株铃数和产量。外施6-BA和ABA对高强纤维品种产量和纤维品质的影响较中强纤维品种更为明显。低温下, 在棉铃发育初期喷施6-BA对改善棉纤维品质的效果最好。

关键词: 棉花 温度 6-BA ABA 产量 纤维品质

Abstract: Taking two cotton cultivars, Kemian 1 and NuCOTN as test materials, a field experiment of different sowing dates was conducted in Nanjing of Jiangsu Province in 2006 and 2007 to study the effect of 6-BA and ABA on cotton yield and fiber qualities under different mean daily minimum temperature during fiber development period, with limpid water as a control, 6-BA and ABA were sprayed when the boll of 1st and 2nd node in the 6th to 9th fruiting branches were anthesising. The results showed that the lower Min_(mDT) induced by late sowing reduced cotton yield and fiber quality. The most significant effect on boll weight and fiber qualities were investigated from the bolls setting on the middle fruiting branches sprayed by 6-BA and ABA. In the present experiment, boll weight of middle fruiting branches was improved by application of 6-BA, but reduced by application of ABA and little effect was indicated on fiber qualities by both applications. Fiber length and strength of bolls setting on the middle fruiting branches were raised, micronaire was optimized in 6-BA and ABA applications, boll weight was raised in 6-BA application contrasted with ABA application. Bolls per plant, average boll weight and lint yield of whole plant were raised in 6-BA application, while bolls and lint yield were reduced in ABA application whatever Min_(mDT) was different. The changes of lint yield and fiber qualities showed more noticeable trends in Kemian 1 than in NuCOTN by 6-BA and ABA applications. In low temperature condition, the primary stage of cotton boll development was the best phase to improve fiber qualities by spraying 6-BA.

Keywords: cotton temperature 6-BA ABA lint yield fiber quality

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