

离体培养下锌对春小麦子粒形成及干物质积累的影响

董心久;周洪华;王金玲;魏凌基;郝向东;王仙;赵高博

新疆兵团绿洲生态农业重点实验室 新疆石河子832003

Effects of zinc on development of grain and dry matter accumulation in spring wheat after the ear culture in Vitro

DONG Xin-jiu;ZHOU Hong-hua;WANG Jin-ling;WEI Ling-ji;HAO Xiang-dong;WANG Xian;ZHAO Gao-bo*

Key Lab.of Oasis Ecology Agriculture of Xinjiang Bingtuan; Shihezi 832003; China

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摘要 采用离体穗培养技术研究了锌对春小麦后期生长及产量的影响。结果表明,在 Zn^{2+} 浓度为6.mmol/L的处理小麦的生长发育状况最好,其旗叶内叶绿素含量、倒一节长度、穗粒数、结实率、千粒重以及穗的干重与对照相比差异均达到显著或极显著水平;倒二节长度和小花数与对照的差异不显著。低锌和锌过量(Zn^{2+} 浓度为0.3和300mmol/L)条件下,小麦的生长发育受阻,各项性状指标均低于对照,不利于产量的提高;而且锌过量不但降低产量还造成锌肥的浪费和环境污染。

关键词: 锌 春小麦 离体穗培养 子粒形成 干物质积累 锌 春小麦 离体穗培养 子粒形成 干物质积累

Abstract: Ear in Vitro culture technology was employed to study the disciplinarian of the effect of zinc on spring wheat growth at the last stages and yield character.The selected 6 zinc levels were 0,0.3,3,6,30 and 300 mmol/L.The results showed that spring wheat appeared to grow best under Zn^{2+} concentration of 6 mmol/L,in which the chlorophyll content in flag leaf,length of the first joint under spike,kernel number per spike,grain percentage,1000-grain weight and dry matter weight of spike were significantly or highly significant higher than those of CK; However,the difference of length of the second joint under spike and flowering number was not significant between these two treatments.Growth of wheat was restrained under the condition of both low zinc(the concentration of Zn^{2+} is 0.3 mmol/L) and high zinc(the concentration of Zn^{2+} is 300 mmol/L).All the trait index under low zinc condition was lower than those of CK.High zinc application not only reduced yield but also caused the waste of zinc fertilizer and environment pollution.

Keywords:

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