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模拟田间劣变对生理成熟期春大豆植株生长及种子活力的影响

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Title: Effect of Simulated Pre harvest Deterioration Stress on Plant Growth and Seed Vigor of Spring Soybean at Physiological Maturity Stage

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关键词: 春大豆 (KeySearch.aspx?type=KeyWord&Sel=春大豆); 高温高湿 (KeySearch.aspx?type=KeyWord&Sel=高温高湿); 田间劣变 (KeySearch.aspx?type=KeyWord&Sel=田间劣变); 种子活力指 (KeySearch.aspx?type=KeyWord&Sel=种子活力指)

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摘要: ?以田间劣变抗性品种湘豆3号和不抗品种宁镇1号为试材,采用盆栽方式,通过模拟发生田间劣变的逆境,研究了高温高湿胁迫[40℃/30℃、RH95%/100%/70%、10 h/14 h (白天/黑夜)]对春大豆生理成熟期豆荚和茎叶生长量及种子活力的影响。结果表明:短时间(<24 h)的高温高湿胁迫对2个大豆品种豆荚和茎叶的生长量影响不明显,胁迫48 h后,不抗品种宁镇1号豆荚和茎叶生长受抑制程度明显大于抗性品种湘豆3号;与对照相比,高温高湿胁迫后2个大豆品种的发芽势、发芽率、简易活力指数以及脱氢酶和酸性磷酸酶活性均呈下降趋势,并随胁迫时间的延长下降幅度增大,在各个胁迫时间点,不抗品种宁镇1号各测试指标的降幅均显著大于抗性品种湘豆3号。

Abstract: ?Pre-harvest seed deterioration resistant soybean cv. Xiangdou 3 and pre harvest seed deterioration sensitive soybean cv. Ningzhen 1 were used to study the effect of high temperature and high humidity stress (40℃/30℃,100%/70% humidity(RH),and 10 h/14 h cycle(light/dark)for 5,10,16,24,48,96 and 168 h, respectively)on plant growth and seed vigor indexes of spring soybean at physiological maturity stage.The results showed that pod and stem leaf mass growth of Xiangdou 3 and Ningzhen 1 had no significant difference at the short time(<24 h)stress,while,when the stress time exceeded 48 h,the growth of pod and stem leaf of Ningzhen 1 were restrained more serious than Xiangdou 3.The germination energy,germination percentage,simple vigor index,dehydrogenase activity and acid phosphatase activity of Xiangdou 3 and Ningzhen 1,compared with control,were reduced with high temperature and high humidity stress,and the reduce extent increased with the stress time elongation,on the whole,the tested indexes of pre harvest seed deterioration sensitive soybean cv. Ningzhen 1 were reduced more seriously than those of pre harvest seed deterioration resistant soybean cv. Xiangdou 3.

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