

PEG 引发和渗透处理对山梨种子热休眠的预防作用研究

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摘 要:【目的】为探究 PEG 引发和渗透处理对山梨 (*Pyrus ussuriensis*) 种子热休眠诱导的影响。【方法】以解除初生休眠的山梨种子为试验材料, 研究不同质量分数 (5%、25%、50%) 聚乙二醇 (PEG) 溶液引发处理不同时间 (0.5 d、1 d、2 d) 和渗透处理不同时间 (1 d、3 d、7 d) 后, 种子在高温 (25℃) 下的萌发表现。【结果】PEG 引发和渗透处理能够减弱山梨种子热休眠的诱导, 在一定条件下达到预防的效果。采用质量分数 25% 的 PEG 溶液对山梨种子进行 1 d 的引发处理时, 种子发芽率较对照组发芽率 (7%) 显著提高 57%, 发芽指数显著高于对照 0.65, 平均发芽时间显著缩短 7.88 d。采用质量分数为 25% PEG 溶液对山梨种子渗透处理 1 d, 种子的发芽率 (47%) 显著高于对照 40%, 发芽指数显著高于对照 0.53。【结论】山梨种子在高温条件下, 采用 25% PEG 溶液对种子引发或渗透处理 1 d 可有效阻止山梨种子进入热休眠。

关键词: 秋子梨; 热休眠; 引发处理; 渗透处理; 种子萌发

Effects of PEG Initiation and Osmotic Treatment on Thermal dormancy of *Pyrus ussuriensis* seeds

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Abstract: 【Objective】 In order to investigate the effects of PEG initiation and osmotic treatment on the induction of thermodormancy of *Pyrus ussuriensis* seeds. 【Methods】 The primary dormancy removal of *P. ussuriensis* seeds was used as experimental materials. The germination performance of seeds under high temperature (25℃) was studied after different mass fractions (5%, 25%, 50%) of polyethylene glycol (PEG) solution were treated for different time (0.5 d, 1 d, 2 d) and osmotic treatment for different time (1 d, 3 d, 7 d). 【Results】 PEG initiation and osmotic treatment could weaken the induction of thermal dormancy of *P. ussuriensis* seeds and achieve the preventive effect under certain conditions. When the seed was treated with 25% PEG solution for 1 d, the germination percentage was significantly increased by 57% compared with the control (7%), the germination index was significantly higher than that of the control group (0.65), and the mean germination time was significantly shortened by 7.88 d. The seed germination percentage (47%) was significantly higher than that of the control (40%), and the germination index was significantly higher than that of the control (0.53). 【Conclusion】 Under the condition of high temperature, the seed initiation or osmotic treatment for 1 d with 25% PEG solution could effectively prevent the seed from inducing thermal dormancy.

Key words: *Pyrus ussuriensis*; Thermal dormancy; Initiation treatment; Osmotic treatment; Seed germination