

研究报告

水分胁迫对黄檗幼苗保护酶活性及脂质过氧化作用的影响

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摘要

以轻度干旱、重度干旱和水涝处理黄檗幼苗,测定丙二醛(MDA)和游离脯氨酸含量及超氧化物歧化酶(SOD)、过氧化物酶(POD)和过氧化氢酶(CAT)活性的动态变化.结果表明,处理40 d以后,轻度干旱、重度干旱和水涝处理的叶片MDA含量始终显著高于对照,最高分别达对照的2.49、2.37和4.12倍,三者之间在处理80 d以后MDA含量差异不显著.水涝处理和对照的游离脯氨酸含量在处理期间没有明显变化,干旱处理的游离脯氨酸含量从处理后40 d开始增加、80 d后回落,重度干旱处理的增加幅度显著大于轻度干旱处理.SOD、POD和CAT活性的变化趋势缺乏一致性,但重度干旱处理的黄檗幼苗,叶片的SOD、POD和CAT活性在处理期间始终显著高于轻度干旱、水涝处理和对照.

关键词 [水分胁迫](#); [黄檗](#); [保护酶](#); [脂质过氧化](#)

分类号

Effects of water stress on protective enzyme activities and lipid peroxidation in *Phellodendron amurense* seedlings

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Abstract

This paper studied the effects of water stress on the dynamic variations of malondialdehyde (MDA) and free proline contents, and of superoxide dismutase (SOD), peroxidase (POD) and catalase (CAT) activities in *Phellodendron amurense* seedlings. The results showed that after treated with light drought, heavy drought and waterlogging for 40 days, the MDA content in corktree seedlings was significantly higher, being 2.49, 2.37 and 4.12 times of the control, respectively, but after treated for 80 days, there was no significant difference among the three treatments. The free proline content had no obvious variation under waterlogging and in the control, but increased after 40 days of light and heavy drought while declined after 80 days of drought stresses, with the increment being higher under heavy drought than under light drought. No regularity was found for the dynamic variations of SOD, POD and CAT activities, but they were significantly higher under heavy drought than under light drought, waterlogging, and the control.

Key words

[Water stress](#) [Phellodendron amurense](#) [Cell protective enzyme](#) [Lipid peroxidation](#)

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