

研究论文

# 蚜虫(*Aphis medicaginis* Koch)危害胁迫对不同苜蓿品种体内丙二醛含量及防御性酶活性的影响

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**摘要** 研究了蚜虫危害胁迫后不同抗蚜性苜蓿品种叶片内丙二醛含量及防御性酶活性的动态变化。结果表明: 在蚜虫刺吸诱导的过程中, 高感品种的MDA含量始终高于高抗品种, 并且高感和高抗品种均保持上升的趋势; 高感品种的SOD、POD和PAL活性始终低于高抗品种, 其中高感和高抗品种的SOD和POD活性均表现先上升后下降的趋势, 而PAL活性上升到高峰后均趋于稳定; CAT活性在高感和高抗品种间表现为交替的上升下降; 高抗品种的PPO活性前期低于高感品种, 而后期高于高感品种。由此可见, 在蚜虫危害胁迫下, 高感和高抗品种间MDA、SOD、POD、PAL和PPO活性的变化与苜蓿的抗蚜性密切相关, 均可作为苜蓿抗蚜性鉴定的生理指标, 而CAT活性变化与苜蓿抗蚜性的联系有待进一步研究。

**关键词** [紫花苜蓿](#); [蚜虫](#); [危害胁迫](#); [丙二醛](#); [防御性酶](#)

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## Effects of herbivore stress by *Aphis medicaginis* Koch on the contents of MDA and activities of protective enzymes in different alfalfa varieties

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**Abstract** The study focused on the dynamics of MDA contents and the activities of protective enzymes in the leaves of alfalfa varieties with various resistance to *Aphis medicaginis* Koch. The results indicated that the MDA contents of susceptible varieties were higher than that of the resistant ones when their leaves were piercing-sucked by the aphid. Throughout the period of the aphid attacks, the MDA contents displayed a rising trend in both of the susceptible and resistant varieties. The SOD, POD and PAL activities in the susceptible varieties appeared lower than that of the resistant ones. The activities of SOD and POD of all varieties rose firstly and then declined. However, the PAL activity rose to a peak and remained high during the testing period. The CAT activity formed cycles of rising and declining, with the activity peaks and bases showing opposite positions in the resistant and susceptible varieties, respectively. The PPO activity of susceptible varieties became higher compared to resistant ones in the earlier period but lower in the later part. Therefore, under the stress of the aphid, the contents of MDA and the activity of SOD, POD, PAL and PPO in susceptible and resistant varieties are closely related to the aphid-resistance of alfalfa. These biochemical markers may be used as physiological index for aphid-resistance appraisal. However, the relationship between CAT and aphid-resistance of alfalfa is worth of further research.

**Key words** [alfalfa](#) \_ [aphid](#) \_ [herbivore](#) [stress](#) \_ [MDA](#) \_ [protective](#) [enzymes](#)

DOI

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