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2株内生真菌对菊花抗旱特性的影响

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作者中文名	作者英文名	单位中文名	单位英文名	E-Mail
宋文玲	SONG Wenling	江苏省微生物资源产业化工程技术研究中心 江苏省生物多样性与生物技术重点实验室 南京师范大学 生命科学学院,江苏 南京 210046	Jiangsu Engineering and Technology Research Center for Industrialization of Microbial Resources, Jiangsu Key Laboratory for Biodiversity and Biotechnology, College of Life Science, Nanjing Normal University, Nanjing 210046, China	
刘晓珍	LIU Xiaozhen	江苏省微生物资源产业化工程技术研究中心 江苏省生物多样性与生物技术重点实验室 南京师范大学 生命科学学院,江苏 南京 210046	Jiangsu Engineering and Technology Research Center for Industrialization of Microbial Resources, Jiangsu Key Laboratory for Biodiversity and Biotechnology, College of Life Science, Nanjing Normal University, Nanjing 210046, China	
蔡信之	CAI Xinzhi	盐城师范学院 江苏省滩涂生物资源与环境保护重点实验室,江苏 盐城 224002	Jiangsu Provincial Key Laboratory of Coastal Wetland Bioresources and Environmental Protection, Yancheng Normal College, Yancheng 224002,China	
孙迪	SUN Di	江苏省微生物资源产业化工程技术研究中心 江苏省生物多样性与生物技术重点实验室 南京师范大学 生命科学学院,江苏 南京 210046	Jiangsu Engineering and Technology Research Center for Industrialization of Microbial Resources, Jiangsu Key Laboratory for Biodiversity and Biotechnology, College of Life Science, Nanjing Normal University, Nanjing 210046, China	
戴传超	DAI Chuanchao	江苏省微生物资源产业化工程技术研究中心 江苏省生物多样性与生物技术重点实验室 南京师范大学 生命科学学院,江苏 南京 210046	Jiangsu Engineering and Technology Research Center for Industrialization of Microbial Resources, Jiangsu Key Laboratory for Biodiversity and Biotechnology, College of Life Science, Nanjing Normal University, Nanjing 210046, China	daichuanchao@njnu.edu.cn

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中文摘要:目的: 以PEG6000模拟干旱条件,研究接种内生真菌(葡萄孢属C1菌*Botrytis* sp.、球毛壳菌C4菌*Chaetomium globosum*对药用菊花*Ch. morifolium*抗旱性的影响。 方法 :分别用0%,10%,20%,30%,40% PEG6000胁迫菊花组培苗4 d,测定各处理组菊花生物量,叶片超氧化物歧化酶(SOD)、过氧化物酶(POD)、苯丙氨酸解氨酶(PAL)活性及叶片丙二醛(MDA)、可溶性蛋白含量。 结果 :模拟干旱胁迫后,接种内生真菌的菊花长势好于对照(未接菌),PEG6000胁迫4 d后,随着胁迫浓度的增加,菊花总生物量不断减少,接菌组生物量显著高于对照,C4组高于C1组;各处理组MDA含量随着胁迫浓度的增加而不断增加;各处理组POD活性、可溶性蛋白含量随着胁迫浓度的增加均呈现先增加后减小的趋势;对照SOD活性随着胁迫浓度的增加而逐渐增加,接菌组SOD活性基本保持不变;对照PAL活性随着胁迫浓度的增加而逐渐增加。不同浓度PEG胁迫后,接菌组MDA含量始终低于对照,SOD活性、POD活性、可溶性蛋白含量、PAL活性均始终高于对照。 结论 :接种内生真菌提高菊花的抗旱能力。

中文关键词:PEG6000 葡萄孢菌C1菌株 球毛壳菌C4菌株 菊花 抗旱性 抗氧化

Effect of PEG stress on plantlets of *Chrysanthemum morifolium* induced by endophytic *Botrytis* sp. (C1) and *Chaetomium globosum*(C4)

Abstract: The effect of the endophytic fungi *Botrytis* sp. (C1) or *Chaetomium globosum* (C4) on the drought resistance of *Chrysanthemum morifolium* was studied. *Ch. morifolium* plantlets were inoculated with C1, C4 and cultured in the pots for 60 days, then the plantlets were stressed by 0%, 10%, 20%, 30%, 40% PEG6000 respectively in order to simulate different drought conditions. Biomass, the activities of SOD, POD, PAL, the contents of MDA and soluble protein of each group were determined. The results showed that endophytic fungi groups grew better than the control (without inoculation endophytic fungi). With the increasing of the concentration of PEG6000, the biomass of *Ch. morifolium* of each groups decreased, while the biomass of fungi groups was significantly higher than that of control, moreover C4 group higher than C1 group. With the concentration of PEG increasing, the content of MDA of each group increased too, while POD activity and soluble protein content of all treatments increased at first and then decreased. SOD activity and PAL activity of the control were increased with the increase of PEG concentration, but SOD activity of the two fungi groups were stable. After been stressed by different concentrations of PEG, MDA content of two fungi groups were always lower than the control, while SOD activity, POD activity, PAL activity and soluble protein content were higher. In conclusion, endophytic fungi can increase the drought resistance of *Ch. morifolium*.

keywords:PEG6000 *Botrytis* sp. (C1) *Chaetomium globosum*(C4) *Chrysanthemum morifolium* drought resistance antioxidation

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