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前植物生产层

# 应用Logistic方程研究优良冷季型观赏草抗热性

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摘要：

高温是热带和亚热带地区冷季型观赏草生长发育的最大限制因子。本研究以叶片为材料，用改良电导法测定配合Logistic方程求拐点温度的方法测定了6种冷季型观赏草的高温半致死温度（LT50）。结果表明，经等梯度的高温处理后，待试材料叶片细胞伤害率和温度之间呈现明显的“S”形曲线，符合Logistic方程，拟合度较好。抗热性排序为：宽叶苔草（Carex siderosticta）(LT50=53.5 ℃)>皱苞苔草（C.chungii）(LT50=52.5 ℃)>发状苔草（C.comans）(LT50=51.5 ℃)>棕榈叶苔草（C.muskingumensis）(LT50=48.4 ℃)>蓝灰石竹（Dianthus gratianopolitanus）(LT50=46.3 ℃)>花叶虉草（Phalaris arundinacea）(LT50=44.8 ℃)。通过对供试材料在南京地区越夏情况的田间观测，发现宽叶苔草、皱苞苔草、发状苔草的长势良好，外观无任何变化，因此认为这3种观赏草的抗热性较强。

关键词： 冷季型观赏草；抗热；叶；半致死温度

## Applying logistic equation to heat resistance study of cold season ornamental grasses

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Abstract:

High temperature was a major limiting factor for the growth of cool season ornamental grasses in subtropical regions and tropical regions. The heat resistance (LT50) of six cold season ornamental grasses was measured by determining the inflection point temperature through modified conductance ratio measurement combining with logistic equation, and the leaf was used to study. The result showed that the relationship between cell damage rate of leaf and temperature showed an obvious “S” curve through constant gradient treatment of high temperature, it was better fitting degree by according with logistic equation. Heat tolerance ability of materials was ranked as follows:Carex siderosticta (LT50=53.5 ℃)> C.chungii (LT50=52.5 ℃)>C.comans (LT50=51.5 ℃)> C. muskingumensis (LT50=48.4 ℃) >Dianthus gratianopolitanus (LT50=46.3 ℃)>Phalaris arundinacea (LT50=44.8 ℃). Through the field observations of the material situation of over summering in the Nanjing area, C.siderosticta, C.chungii, C.comans materials grew better than other grasses and had good appearance without any changes. Therefore, this study suggested that C.siderosticta,C.chungii, C.comans had strong heat resistance.

Keywords: cool season ornamental grasses; heat tolerance; leaf; LT50

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