

园艺园林科学

主要气候因子对元宝枫秋叶着色的影响

蔺银鼎¹,梁峰²

山西农业大学, 山西太谷030801

摘要:

本试验分别从光照、温度和降雨量三个方面研究分析气候因子对元宝枫秋叶变色的影响,对元宝枫秋叶着色的生态机制进行初步探讨,从而为元宝枫的栽培和科学管护提供科学依据。基于对元宝枫秋叶着色生态机制的探讨,在山西农业大学林业试验站布置了三项试验,其中光照试验选用黑色塑料遮阳网对元宝枫树冠部分进行遮光处理,降雨量和温度对元宝枫秋叶着色的影响试验采用大田观测统计方法。降雨和温度资料来自当地的气象部门。实验结果表明,光照是影响元宝枫秋叶着色的重要指标,充足的光照有利于元宝枫叶片内的可溶性糖和花色素苷的积累。随着光照强度的增加,元宝枫叶片中的花色素苷含量呈明显上升的趋势。全光照处理条件下的叶片花色素苷含量值显著高于其他三种光强处理。其中35%光强处理条件下花色素苷含量明显降低,与前三者光强处理形成鲜明的对照。降雨量较高的年份和地区有利于元宝枫秋叶的着色,尤其对秋叶着色的色相和色泽表现有明显的影。当温度低于植物的生理温度下限时,植物的生命活动将趋于停止。秋叶着色是元宝枫生命体对恶劣环境条件的保护性反应,低于50C的持续低温很可能是导致元宝枫秋叶着色的主导因素,较高的昼夜温差则为糖分的积累提供了条件,有利于花色素苷的合成。

关键词: 元宝枫 秋叶着色 生态机制 光照 降雨量 温度

On eco-mechanism of the autumn lives Color Emerging of Acer truncatum Bunge

Abstract:

It was studied based on sunshine, temperature and rainfall that autumn leaves color of Acer truncatum Bunge changes as by difference of climate actors. then probe into eco-mechanism of the autumn lives changing color of Acer truncatum Bunge and provide scientific basis for growing and management Acer truncatum Bunge. based on the study to eco-mechanism of the autumn lives changing color of Acer truncatum Bunge ,three kind of tests were engaged in Shanxi agricultural university forest station. The result is that sunshine is a important index which effects the autumn lives changing color of Acer truncatum Bunge. Full sunshine is helpful to accumulate sweets in to the autumn lives, and then increase change of leaves color. With increasing of intensity of illumination, there will be a gradual increase of the anthocyanin quantity of autumn leaves of Acer truncatum Bunge. Under the Full illumination condition, anthocyanin quantity of autumn leaves of Acer truncatum Bunge will be high than other three tests. In it, under the 35% of full illumination condition, the anthocyanin quantity of autumn leaves reduces obvious. It is profitable that color of the autumn leaves was increased in the period and areas with more rainfall, especially the color and luster of the autumn leaves were showed. Rainfall takes a very important part to increase soil water content and air humidity. In it, air humidity may be more important than soil water content to increase color of autumn leaves. When temperature reached into physiological temperature lower limit of plant the life action of plant will tend to stop. Changing color of the autumn lives is a saving response of plants against bad environment condition. The temperature condition down of 50C might is main factor to effect changing color of autumn leaves and high day-night temperature difference just is helpful to accumulate sweets and composing anthocyanin.

Keywords: Acer truncatum Bunge autumn leaves changing eco-mechanism sunshine temperature rainfall

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作者简介:

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