

## 不同光照强度下半夏化学成分含量的比较研究

张跃进<sup>1</sup>, 孟祥海<sup>2</sup>, 杨东风<sup>1</sup>, 许玲<sup>3</sup>, 张小燕<sup>4\*</sup>

(1. 西北农林科技大学生命科学学院, 陕西杨陵 712100; 2. 陕西新药技术开发中心, 西安 710075;

3. 西安亨通光华制药有限公司, 陕西杨陵 712100; 4. 西北农林科技大学农学院, 陕西杨陵 712100)

**摘要:** 利用遮荫网对卵叶型半夏 (*Pinellia ternata* (Thunb.) Breit.) 进行遮荫, 秋季倒苗后, 测定其化学成分含量, 以研究光强对半夏化学成分含量的影响。结果显示: 全光照下半夏的生物碱、鸟苷和蛋白质含量较高, 55% 遮荫处理半夏的块茎增重幅度较大, 80% 遮荫处理的还原糖和可溶性糖含量较高。不同光照强度下, 半夏化学成分含量有显著的差异, 全光照处理有利于半夏生物碱、鸟苷和蛋白质的积累, 80% 遮荫处理有利于其还原糖和可溶性糖的积累, 55% 遮荫处理有利于半夏的生长, 但其化学成分含量低于全光照处理。

**关键词:** 半夏; 光照强度; 化学成分

中图分类号: R284; Q946

文献标识码: A

文章编号: 1000-470X(2009)05-0533-04

## Comparative Study on Chemical Constituents of *Pinellia ternata* (Thunb.) Breit. under Different Light Intensities

ZHANG Yue-Jin<sup>1</sup>, MENG Xiang-Hai<sup>2</sup>, YANG Dong-Feng<sup>1</sup>, XU Ling<sup>3</sup>, ZHANG Xiao-Yan<sup>4\*</sup>

(1. College of Life Science, Northwest A & F University, Yangling, Shaanxi 712100, China; 2. Shaanxi Pharmaceutical

Development Center, Xi'an 710075, China; 3. Shaanxi Hengtong Hi-tec Group, Yangling, Shaanxi 712100, China;

4. College of Agronomy, Northwest A & F University, Yangling, Shaanxi 712100, China)

**Abstract:** The effect of light intensities on the chemical constituents of the tuber of *Pinellia ternata* (Thunb.) Breit. (ovate leaf) was studied with the plants which were grown under different light intensities. When the sprouts wilted in autumn, the tubers were collected and the chemical constituents of it were measured. Results showed, there are higher alkaloids, guanosine and proteins contents with full sunlight treatment or without shading treatment. The tuber weights were bigger with 55% shading treatment. And the contents of reducing sugar and soluble sugar were higher. With 80% shading treatment, The contents of the chemical constituents were significantly influenced by different shading treatments. Full sunlight treatment is in favor of alkaloid, guanosine and protein accumulation. Reducing sugar and soluble sugar increase benefited from 80% shading treatment. And 55% shading treatment is conducive to the *Pinellia ternata* (Thunb.) Breit growth, but its chemical composition contents were less than full sunlight.

**Key words:** *Pinellia ternata* (Thunb.) Breit.; Light intensity; Chemical constituent

半夏 *Pinellia ternata* (Thunb.) Breit. 为天南星科多年生草本植物, 其块茎于夏、秋二季采挖, 除去外皮及须根, 晒干, 具有燥湿化痰、降逆止呕、消痞散结的功效<sup>[1]</sup>。半夏块茎内含淀粉、生物碱类、氨基酸类、鸟苷、琥珀酸、挥发油、 $\beta$ -谷甾醇、草酸钙、半夏蛋白、多糖、半夏酸 (pinellie acid)<sup>[2]</sup> 等多种化学成分。有关半夏的研究多集中在栽培技术<sup>[3-5]</sup>、化学成分研究<sup>[6,7]</sup>、生态学特性研究及炮制<sup>[8,9]</sup> 等方面。然而, 关于半夏不同光照条件下块茎的化学成分含量变化还未见报道。本研究的目的在于通过对不同

光照强度下半夏的生长、繁殖和块茎中化学成分含量的比较研究, 为半夏高产、优质规范化生产提供科学依据。

### 1 材料和仪器

#### 1.1 供试材料

从陕西商洛收集卵叶形半夏块茎, 经梁宗锁教授鉴定为半夏 *Pinellia ternata* (Thunb.) Breit.。采用盆栽试验, 土壤为沙壤土。2007-03-27 播下块茎, 每盆 10 株, 播种深度为 3 cm, 出苗后定苗为 9 株。

收稿日期: 2009-01-07, 修回日期: 2009-03-22。

基金项目: 陕西省自然科学基金研究计划项目 (2003C103)。

作者简介: 张跃进 (1960 -), 男, 硕士生导师, 副教授, 主要研究方向为药用植物规范化生产。

\* 通讯作者 (Author for correspondence. E-mail: zhangxyj@nwsuaf.edu.cn)。