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Blue, green and UV lights inhibit *Scrophularia yoshimura* hairy roots growth but enhance their secondary metabolites productionYi-Chen Liu¹, Chi-Chen Lin¹, Wen-Te Chang², Meng-Shiou Lee² and Ming-Kuem Lin²¹National Chung-Hsing University, Taiwan²China Medical University, Taiwan

Scrophularia yoshimura (Scrophulariaceae) is a Taiwan endemic plant. It has been proved that its main active compounds are higher than *Scrophularia ningpoensis* (Chinese figwort, xuán cān). Transformed hairy root which grows rapidly is used to produce large quantity of active compounds for many medicinal plants. However, there is no research about different wavelengths of light influence transformed hairy root. The aim of this study is to investigate the effect of different wavelengths of light on *S. yoshimura* hairy root. In this study, *S. yoshimura* hairy roots were induced by *Agrobacterium rhizogenes* LBA1334. Different combinations of various wavelength light-emitting diodes (LEDs) were used to irritate *S. yoshimura* hairy root for 4 weeks. The content of harpagoside and cinnamic acid in the hairy root were analyzed by high performance liquid chromatography. We found that *S. yoshimura* hairy root irritated by red light and infrared light increase both fresh and dry weight, but reduce the amounts of harpagoside and cinnamic acid compared to dark-culture. On the other hand, *S. yoshimurae* hairy root irritated by blue light, green light and UV light reduce both fresh and dry weight, but increase the amounts of harpagoside and cinnamic acid. The results of this study is the first time showed that different wavelengths of light affect transformed hairy root growth and secondary metabolites production of *S. yoshimura*. These findings can be applied in the large production of harpagoside and cinnamic acid.

Biography

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