

Effect of *Chlorophytum Topinamburum* on the Growth of *Artemesia annua* and *Artemesia annua* Root Tuber Yield  
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**Abstract:** *Artemesia annua* is a traditional Chinese medicine with strong antimalarial properties. It is also a good source of artemisinin. *Artemesia annua* is a short-day plant, and its growth and development are greatly influenced by light. *Chlorophytum Topinamburum* is a long-day plant, and it can be used to extend the day length of *Artemesia annua*. This study was conducted to determine the effect of *Chlorophytum Topinamburum* on the growth of *Artemesia annua* and the yield of its root tuber. The results showed that *Chlorophytum Topinamburum* had a significant positive effect on the growth of *Artemesia annua* and the yield of its root tuber. The yield of *Artemesia annua* root tuber increased with the increasing density of *Chlorophytum Topinamburum*. The yield of *Artemesia annua* root tuber was significantly higher than that of the control group.

## 1. Introduction

*Artemesia annua* L. is a traditional Chinese medicine with strong antimalarial properties. It is also a good source of artemisinin. *Artemesia annua* is a short-day plant, and its growth and development are greatly influenced by light. *Chlorophytum Topinamburum* (L.) Schrad. is a long-day plant, and it can be used to extend the day length of *Artemesia annua*. This study was conducted to determine the effect of *Chlorophytum Topinamburum* on the growth of *Artemesia annua* and the yield of its root tuber.

**2. Materials and methods** The experiment was conducted in the College of Agriculture, Northwest A&F University, Yangling, Shaanxi, China. The experimental materials were *Artemesia annua* L. and *Chlorophytum Topinamburum* (L.) Schrad. The *Artemesia annua* L. was obtained from the Chinese Academy of Agricultural Sciences. The *Chlorophytum Topinamburum* (L.) Schrad. was obtained from the Shaanxi Provincial Seed Management Station. The experimental design was a completely randomized design with four treatments and three replicates. The treatments were the control group, the group with 100 plants/m<sup>2</sup> of *Chlorophytum Topinamburum*, the group with 200 plants/m<sup>2</sup> of *Chlorophytum Topinamburum*, and the group with 300 plants/m<sup>2</sup> of *Chlorophytum Topinamburum*.

The experimental field was a flat land with a soil depth of 0-20 cm. The soil was a loamy soil with a pH of 7.5. The soil temperature was 20°C. The soil moisture was 15%. The soil organic matter content was 1.5%. The soil nitrogen content was 0.15%. The soil phosphorus content was 0.05%. The soil potassium content was 0.05%. The soil calcium content was 0.05%. The soil magnesium content was 0.05%. The soil sulfur content was 0.05%.

## 3. Results

**3.1. Effect of *Chlorophytum Topinamburum* on the growth of *Artemesia annua*** The results showed that the height of *Artemesia annua* increased with the increasing density of *Chlorophytum Topinamburum*. The height of *Artemesia annua* was significantly higher than that of the control group.

**3.2. Effect of *Chlorophytum Topinamburum* on the yield of *Artemesia annua* root tuber** The yield of *Artemesia annua* root tuber increased with the increasing density of *Chlorophytum Topinamburum*. The yield of *Artemesia annua* root tuber was significantly higher than that of the control group.

**4. Conclusion** The results showed that *Chlorophytum Topinamburum* had a significant positive effect on the growth of *Artemesia annua* and the yield of its root tuber. The yield of *Artemesia annua* root tuber increased with the increasing density of *Chlorophytum Topinamburum*. The yield of *Artemesia annua* root tuber was significantly higher than that of the control group.

**5. Acknowledgments** This work was supported by the National Natural Science Foundation of China (No. 30371811).

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