



## Growth and Physiological Activity of Green Grass Jelly (*Cocculus orbiculatus*) Cuttings on the Use of Planting Media Composition and *Photosynthetic Bacteria* (PSB)

Muji RAHAYU<sup>\*1</sup>, Nadia AZZAHRO<sup>2</sup>, Retna Bandriyati ARNIPUTRI<sup>3</sup>, Gani Cahyo HANDOYO<sup>4</sup>

<sup>1,2,3,4</sup>Agrotechnology Study Program, Faculty of Agriculture, Sebelas Maret University, Surakarta, Indonesia, JL, Ir Sutami 36A, Surakarta, Jawa Tengah

<sup>1</sup><https://orcid.org/0009-0007-5546-8427>, <sup>2</sup><https://orcid.org/0009-0005-0396-9399>, <sup>3</sup><https://orcid.org/0000-0002-4458-1324>

<sup>4</sup><https://orcid.org/0000-0002-1115-0990>

\*Corresponding email: [mujirahayu@staff.uns.ac.id](mailto:mujirahayu@staff.uns.ac.id)

### Article Info

Received: 05.03.2025

Accepted: 21.11.2025

Online published: 15.12.2025

DOI:10.29133/yyutbd.1650085

### Keywords

Biochar,  
Chlorophyll,  
Nitrogen,  
Palm Fiber,  
Photosynthesis

**Abstract:** *Cocculus orbiculatus* is one type of creeping green grass jelly that had many benefits in the health sector and as a food ingredient. The study aims to determine the effect of planting media composition and PSB on the growth of green grass jelly cuttings. This study used a factorial Randomized Complete Group Design (RCGD). The first factor was the composition of planting media, namely soil + biochar (2:1), soil + manure + biochar (1:1:1), soil + manure + biochar (2:2:1), and soil + fertilizer (2:1). The second factor was PSB concentration: without PSB, 10 mL L<sup>-1</sup>, 15 mL L<sup>-1</sup>, and 20 mL L<sup>-1</sup>. Data were analyzed using Analysis of Variance (ANOVA) and Duncan Multiple Range Test (DMRT) further tests at 5% level. The results showed that the use of planting media composition of soil + manure + biochar (2:2:1) with PSB 10 mL L<sup>-1</sup> could increase plant height at 6 weeks after planting (146.3 cm) and the number of leaves at 6 weeks after planting. The use of media composition of soil+manure+biochar (2:2:1) can increase plant height, number of leaves, leaf area, fresh weight, dry weight, and chlorophyll content compared to the use of other media compositions. The application of 10 mL L<sup>-1</sup> PSB can increase the number of leaves compared to the application of other concentrations.

**To Cite:** Rahayu, M, Azzahro, N, Arniputri, R B, Handoyo, G C, 2025. Growth and Physiological Activity of Green Grass Jelly (*Cocculus orbiculatus*) Cuttings on the Use of Planting Media Composition and *Photosynthetic Bacteria* (PSB). *Yuzuncu Yil University Journal of Agricultural Sciences*, 35(4): 728-741. DOI: <https://doi.org/10.29133/yyutbd.1650085>

## 1.Introduction

Cincau (grass jelly) is a plant with great potential to be developed for food and health applications (Yulinery et al., 2024). The most commonly used part is the leaf, which is processed into a gel. These leaves contain polysaccharide compounds, such as pectin and other carbohydrates, that contribute to gel formation (Purnama et al., 2023). There are many varieties of grass jelly, including creeping green grass jelly (*Cyclea barbata* Miers), shrub green grass jelly (*Premna oblongifolia*), creeping green grass jelly (*Cocculus orbiculatus*), oil jelly (*Stephania hernandifolia*), and black grass jelly or "janggelan" (*Mesona palustris*). Among these, the creeping green grass jelly (*C. orbiculatus*) has not yet been widely cultivated.

*C. orbiculatus* contains carbohydrates, fats, and proteins, as well as calcium, vitamins, and minerals. It is also rich in several bioactive compounds, including chlorophyll, polyphenols, and flavonoids. The chemical profile of *C. orbiculatus* includes alkaloids such as higenamine, coclaurine,