

## **Pengaruh Biostimulan Terhadap Pertumbuhan dan Kandungan Fitokimia Pada Tanaman Rosela (*Hibiscus sabdariffa* L.) Varietas Roselindo 1**

### **INTISARI**

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Rosela (*Hibiscus sabdariffa* L.) merupakan tanaman herbal semusim yang berasal dari India, dan Afrika, disebut juga Karkade atau Merambos, kelopak berwarna merah dan tebal serta memiliki aroma yang khas dan rasanya masam. Tanaman rosela memiliki banyak manfaat karena kandungan fitokimia, misalnya klorofil, antosianin, vitamin C, dan aktivitas nitrat reduktase. Kandungan fitokimia tersebut dapat dipengaruhi oleh faktor eksternal, yaitu biostimulan. Biostimulan merupakan pupuk yang mengandung unsur makro, mikro, asam amino, dan fitohormon yang dapat diaplikasikan pada tanaman. Tujuan penelitian ini untuk mengevaluasi pengaruh biostimulan terhadap pertumbuhan dan kandungan fitokimia pada tanaman rosela. Penelitian ini dilakukan di Laboratorium Fisiologi Tumbuhan Fakultas Biologi Universitas Gadjah Mada, dan di Stasiun Penelitian Sawitsari Fakultas Biologi Universitas Gadjah Mada, Sleman, Yogyakarta pada bulan November 2019 - Juni 2020. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) dengan faktor perlakuan biostimulan 0 ml/L (kontrol); 2,5 ml/L; 5 ml/L; dan 10 ml/L. Penelitian diawali dengan penyemaian biji, kemudian semai umur 2 minggu dipindah tanam ke lahan, penyiraman dilakukan secara rutin setiap hari. Pemberian biostimulan dilakukan sebanyak 6 kali dimulai pada minggu ke-7 setelah tanam setiap 2 minggu sekali. Parameter yang diamati, yaitu tinggi tanaman, jumlah daun, jumlah cabang, jumlah bunga, bobot basah *calyx*, bobot kering *calyx*, kadar klorofil, kadar vitamin C *calyx*, aktivitas nitrat reduktase, dan kadar antosianin *calyx*. Kadar klorofil, dan aktivitas nitrat reduktase diukur menggunakan spektrofotometer, kadar vitamin C *calyx* diukur menggunakan titrasi iodimetri, serta kadar antosianin *calyx* diukur menggunakan HPLC. Data yang diperoleh dianalisis menggunakan ANOVA (*Analysis of Variance*) yang dilanjutkan dengan uji DMRT (*Duncan Multiple Range Test*). Hasil penelitian menunjukkan meningkatnya konsentrasi biostimulan mampu meningkatkan pertumbuhan (jumlah daun, jumlah bunga, bobot basah *calyx*) serta kandungan fitokimia (kadar klorofil total, kadar vitamin C *calyx*, dan aktivitas nitrat reduktase).

**Keyword:** biostimulan, fitokimia, pertumbuhan, rosela (*Hibiscus sabdariffa* L.)

## Effect of Biostimulant on the Growth and Phytochemical Content in Plant Roselle (*Hibiscus sabdariffa* L.) varieties Roselindo 1

### ABSTRACT

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Roselle (*Hibiscus sabdariffa* L.) is an annual herbal plant originating from India, and Africa, also called Carcass or Merambos, red and thick petals and has a distinctive aroma and sour taste. Roselle plants have many benefits due to phytochemical content, such as chlorophyll anthocyanin, vitamin C and nitrate reductase. The phytochemical content can be influenced by external factors, namely biostimulants. Biostimulant is a fertilizer that contains macro, micro, amino acids, and phytohormones which can be applied to plants. The purpose of this study was to evaluate the effect of biostimulants on growth and phytochemical content in rosella plants. This research was conducted at the Plant Physiology Laboratory of the Faculty of Biology, Universitas Gadjah Mada, and at the Screen House Sawit Sari Research Station, of the Faculty of Biology, Universitas Gadjah Mada, Sleman, Yogyakarta in November 2019 - June 2020. This study used a completely randomized design with various concentration of biostimulant namely 0 ml/L (control); 2.5 ml/L; 5 ml/L; and 10 ml/L. The study began with seed germination and then seedlings of 2 weeks were transplanted to the field, watering was done routinely every day. Biostimulants were given 6 times starting at 7 weeks after planting every 2 weeks. The parameters observed were plant height, number of leaves, number of branches, number of flowers, wet weight of petals, dry weight of petals, chlorophyll content, vitamin C content of petals, nitrate reductase activity, and anthocyanin content of petals, chlorophyll content, and nitrate reductase activity. using a spectrophotometer, the levels of vitamin C calyx used iodimetric titration, and the anthocyanin levels of calyx were measured using HPLC. The data obtained were analyzed using ANOVA (Analysis of Variance) with the DMRT (Duncan Multiple Range Test) test. The results showed that the concentration of biostimulants was able to increase growth (number of leaves, number of flowers, wet weight of calyx) and phytochemical content (total chlorophyll content, calyx vitamin C content, and nitrate reductase activity).

**Keyword:** biostimulant, growth, phytochemicals, roselle (*Hibiscus sabdariffa* L.)