Pengaruh Konsentrasi Limbah Padat Permen dan Kondisi Kultivasi pada Pertumbuhan *Galdieria sulphuraria* sebagai Penghasil Pewarna Makanan Alami (Effect of Confectionery Waste and Cultivation Condition on *Galdieria sulphuraria* Growth as Natural Food Colour).
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ABSTRACT

Galdieria sulphuraria is one of the potential microalgae in the food sector, especially the phycocyanin pigment contained in cells can be used as a substitute for synthetic food coloring. The low productivity of biomass due to improper media conditions and autotrophic cultivation conditions is a problem in pigment production, therefore this research was conducted with the aim of knowing the effect of media conditions on the growth of microalgae and cultivation conditions on phycocyanin pigments. Parameters observed were the number of cells, the weight of the final biomass; carbohydrate content, phycocyanin, chlorophyll and carotenoid content of Galdieria sulphuraria microalgae. This study used a Completely Randomized Design (CRD) with 6 treatments in the form of candy solid waste concentrations with codes A0 (0%), A1 (1%), A5 (5%), A10 (10%), A25 (25%), A50 (50%), A75 (75%) with three repetitions (triplo) and 2 treatments of cultivation conditions B1 (Heterotrophic) and B2 (Mixotrophic). Cultivation was carried out by batch culture method with modified candy solid waste allen media. In the media concentration treatment, samples were taken to count the number of cells using a microscope and the highest growth was observed at code A10 (10%) with a value of 41.167 x 107 cells/ml. Whereas in the treatment of cultivation conditions, phycocyanin pigment was extracted using a phosphate buffer pH 7 and the highest levels of phycocyanin pigment were obtained at code B1 (Heterotroph) with a value of 30.3 ± 2.9 mg/L.

Keywords: Phycocyanin, Galdieria sulphuraria, Heterotrophic, Candy waste