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### *Abstract*

Intensive cultivation of catfish causes an increase in aquatic fertility. This study aimed to determine the production of *Azolla* sp. with different cropping densities on integrated African catfish (*Clarias* sp.) and to determine the water quality in the catfish cultivation during *Azolla* sp. production for 2 months. Catfish cultivation was carried out in a pond (size 4 x 5 x 1.5 m<sup>3</sup> and water depth of 80 cm) at the Experiment Pool Unit Research Station, Fisheries Department, Bulaksumur, Yogyakarta. The study was conducted in August to December 2017. Catfish seeds (size 9-12 cm from Cangkringan, Sleman) were stocked in the pond as many as 2.000 animals (100 seeds/m<sup>2</sup>) and cultivated for two months. During the catfish cultivation were fed with pellets with a dose of 5 % by weight of total catfish. *Azolla* sp. production with treatment 4 cropping densities were carried out on the surface of the catfish cultivation pond, each weighing 6, 12, 18, 24 g/basket (basket size for azolla 45 x 20 x 5 cm<sup>3</sup>), analogous to respectively 67, 133, 200, 267 g/m<sup>2</sup>. During the cultivation of catfish, the production of azolla with the treatment of 4 cropping densities were carried out 3 times the planting periods to harvest (for two weeks/period). Observations were made on catfish growth every two weeks and azolla production in 3 sequential biweekly planting periods. Observations were also made on the water quality of aquaculture catfish, especially ammonium (NH<sub>4</sub><sup>+</sup>), nitrate (NO<sub>3</sub><sup>-</sup>), phosphate (PO<sub>4</sub><sup>3-</sup>), and sulfate (SO<sub>4</sub><sup>2-</sup>). The results of the study concluded that the amount of stocking weight of *Azolla* sp. on integrated catfish cultivation has an effect on plant growth and production. *Azolla* sp. production best in the first and second week periods, achieved at a cropping weight of 267 g/m<sup>2</sup>. Water quality, especially ammonium concentration, nitrate concentration, sulfate concentration, and phosphate concentration tended to decrease during the *Azolla* sp. production.

Keywords: *Azolla* sp., Catfish, Intensive, Production, Water Quality

**Produksi *Azolla* Sp. dengan Padat Tebar Berbeda  
pada Budidaya Lele Dumbo (*Clarias* sp.) Terpadu**

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### **Intisari**

Budidaya lele yang dilakukan secara intensif menyebabkan peningkatan kesuburan air budidaya. Penelitian ini bertujuan untuk mengetahui produksi *Azolla* sp. dengan padat tebar berbeda pada budidaya lele dumbo (*Clarias* sp.) terpadu dan untuk mengetahui pengaruh *Azolla* sp. terhadap unsur hara yang terkandung dalam air budidaya lele selama 2 bulan. Budidaya lele dilakukan dalam kolam (ukuran 4 x 5 x 1,5 m<sup>3</sup> dan kedalaman air 80 cm) di Stasiun Penelitian Unit Kolam Percobaan, Departemen Perikanan, Bulaksumur, Yogyakarta. Penelitian dilakukan pada bulan Agustus hingga Desember 2017. Benih lele (ukuran 9-12 cm yang berasal dari Cangkringan, Sleman) ditebar pada kolam tersebut sebanyak 2000 ekor (100 ekor/m<sup>2</sup>) dan dipelihara selama dua bulan. Selama pemeliharaan lele diberi pakan pelet dengan dosis 5 % berat lele total. Produksi *Azolla* sp. dengan perlakuan 4 padat tebar dilakukan pada permukaan air kolam budidaya lele tersebut, masing-masing seberat 6, 12, 18, 24 g/keranjang dengan ukuran keranjang untuk budidaya *azolla* 45 x 20 (tinggi 5 cm), secara berurutan analog dengan 67, 133, 200, 267 g/m<sup>2</sup>. Selama pemeliharaan lele, produksi *azolla* dengan perlakuan 4 padat tebar dilakukan sebanyak 3 kali periode tanam hingga panen (selama dua minggu/periode). Pengamatan dilakukan terhadap pertumbuhan lele setiap dua minggu dan produksi *azolla* pada 3 periode tanam dua mingguan secara berurutan. Pengamatan juga dilakukan terhadap kualitas air budidaya lele khususnya amonium (NH<sub>4</sub><sup>+</sup>), nitrat (NO<sub>3</sub><sup>-</sup>), fosfat (PO<sub>4</sub><sup>3-</sup>), dan sulfat (SO<sub>4</sub><sup>2-</sup>). Hasil penelitian menyimpulkan bahwa jumlah berat tebar *Azolla* sp. pada budidaya lele terpadu berpengaruh terhadap pertumbuhan dan produksi tanaman. Produksi *Azolla* sp. terbaik pada periode minggu pertama dan kedua, dicapai pada berat tebar 267 g/m<sup>2</sup>. Kualitas air khususnya konsentrasi amonium, konsentrasi nitrat, konsentrasi sulfat, dan konsentrasi fosfat cenderung menurun selama penelitian.

Kata Kunci: *Azolla* sp., Intensif, Kualitas Air, Lele, Produksi