

**PERAN PAKAN ALAMI ANGGOTA KOPEPODA DAN ROTIFERA
TERHADAP PERTUMBUHAN LARVA DAN PRODUKSI BENIH IKAN
KERAPU SUNU *Plectropomus leopardus* (Lacepède, 1802):
KAJIAN MORFOLOGIS, HORMONAL DAN ENZIMATIS**

INTISARI

Ikan kerapu sunu *Plectropomus leopardus* (Lacepède, 1802) merupakan jenis keanekaragaman hayati laut Indonesia yang bernilai ekonomis tinggi sehingga penting untuk dibudidayakan. Namun budidaya tersebut masih menghadapi kendala rendahnya tingkat kelangsungan hidup larva dan produksi benih. Pakan merupakan salah satu kunci sukses dalam pemeliharaan larva. Kopepoda merupakan zooplankton yang banyak dikonsumsi oleh larva ikan laut di alam, sedangkan rotifera merupakan zooplankton yang umum digunakan sebagai pakan alami dalam budidaya ikan laut. Penelitian ini bertujuan untuk mengetahui pengaruh anggota kopepoda dan rotifera sebagai pakan alami terhadap pertumbuhan larva (1), produksi benih (2), aktivitas kelenjar tiroid larva yang ditinjau dari kadar hormon tiroid dan struktur kelenjar tiroid (3) serta aktivitas enzim pencernaan larva yang meliputi protease, amilase dan lipase (4), pada larva ikan kerapu sunu. Perlakuan yang diujikan adalah pemberian pakan alami: kopepoda (A), kopepoda-rotifera (B) dan rotifera (C). Pertumbuhan larva diamati secara morfometri, tingkat kelangsungan hidup larva dan produksi benih dihitung pada akhir penelitian, kadar hormon tiroid larva dianalisis dengan ELISA, struktur kelenjar tiroid larva diamati secara histologis dengan pewarnaan Haematoxylen Eosin, sedangkan enzim pencernaan larva dianalisis secara biokimia dan dengan SDS-PAGE. Sebagai data dukung dilakukan analisis kadar asam lemak, asam amino dan Iodine pada zooplankton serta identifikasi jenis kopepoda yang digunakan. Analisis statistik dengan software SPSS digunakan untuk mengetahui beda nyata antar perlakuan pada beberapa parameter. Hasil penelitian menunjukkan bahwa larva A memiliki pertumbuhan yang lebih besar dibandingkan larva B dan C. Tingkat kelangsungan hidup dan produksi benih dari larva B lebih tinggi dibandingkan larva A dan C ($P < 0,05$). Secara hormonal, larva A dan B mencapai fase metamorfosis lebih cepat dengan kadar T3 dan T4 tertinggi yang terjadi lebih awal ($P < 0,05$) dibandingkan larva C. Larva A memiliki jumlah folikel tiroid lebih banyak dibandingkan larva B dan C. Larva A dan B memiliki ukuran folikel tiroid yang lebih besar dibandingkan larva C. Kajian enzimatik pencernaan menunjukkan bahwa larva B memiliki aktivitas protease, amilase dan lipase yang lebih tinggi ($P < 0,05$) dibandingkan dengan larva A dan C. Kopepoda memiliki kadar asam lemak esensial EPA-DHA serta kadar Iodine yang lebih tinggi dibandingkan rotifera. Rotifera memiliki kadar asam amino lebih tinggi dibandingkan kopepoda. *Acartia sinjiensis* Mori, 1940 merupakan jenis kopepoda yang melimpah dalam penelitian ini. Berdasarkan hasil penelitian tersebut di atas dapat dibuat simpulan bahwa sebagai pakan alami bagi larva ikan kerapu sunu: kopepoda dan kopepoda-rotifera mempercepat

pertumbuhan larva (1), kopepoda-rotifera meningkatkan produksi benih (2), kopepoda dan kopepoda-rotifera mempercepat pencapaian kadar hormon tiroid tertinggi serta meningkatkan jumlah dan ukuran folikel tiroid larva (3) serta kopepoda-rotifera meningkatkan aktivitas enzim pencernaan larva (4). Dengan hasil tersebut maka penggunaan anggota kopepoda-rotifera sebagai pakan alami sangat direkomendasikan dalam pemeliharaan larva ikan kerapu sunu.

Kata kunci: kopepoda, rotifera, pertumbuhan, tiroid, enzim pencernaan, produksi benih, larva kerapu sunu

THE ROLE OF MEMBERS OF COPEPODS AND ROTIFERS ON GROWTH OF LARVAE AND SEED PRODUCTION OF CORAL TROUT

Plectropomus leopardus (Lacepède, 1802): STUDY ON MORPHOLOGICAL, HORMONAL AND ENZYMATIC

ABSTRACT

Coral trout *Plectropomus leopardus* (Lacepède, 1802) is one kind of Indonesian marine biodiversity that are highly economic value, so it is important to be cultivated. However the aquaculture of this species is still facing problem on the low larval survival rate and seed production. Feed is one of key success on larvae rearing. Copepods is a common zooplankton prey by marine fish larvae in nature, while rotifers is a common zooplankton used to be a live feed for marine fish larvae in aquaculture scale. The purpose of this study is to determine the influence of members of copepods and rotifers as live feed to the growth of larvae (1) and seed production (2), the activity of thyroid gland, in term of thyroid hormone level consist of T3 and T4 and thyroid gland structure (3) and also the digestive enzymes activity of protease, amylase and lipase (4) of coral trout. The treatment tested was different live feeds as feeding to coral trout larvae: copepods (A), copepods-rotifers (B) and rotifers (C). The growth of larvae was measured by morfometric, the larval survival rate and the seed production was counted at the end of study, level of larval thyroid hormone were analyzed by ELISA, larval thyroid structure were observed histological by Haematoxylen Eosin staining, while larval digestive enzymes activity were analyzed by biochemical and SDS-PAGE. Some additional parameters, consisting of fatty acids, amino acids and Iodine level of zooplankton and also identification of copepods species was performed. Statistical analysis using SPSS software to determine the significantly different among treatment on certain parameters. The study indicated the growth of larvae A faster than larvae B and C. The survival rate and seed production of larvae B were higher than larvae A and C ($P < 0.05$). Larva A and B achieved earlier phases of metamorphosis with the highest levels of T3 and T4 faster than larvae C ($P < 0.05$). The number of thyroid follicles larvae A more than larvae B and C. The size of thyroid follicles on larvae A and B were bigger than larvae C. The activity of protease, amylase and lipase of larvae B were higher than larvae A and C ($P < 0.05$). The level of essential fatty acids EPA-DHA and Iodine of copepods were higher than rotifers. On the other hand, the level of amino acids of rotifers was higher than copepods. Copepods *Acartia sinjiensis* Mori, 1940 was an abundant species in this study. Based on the study, it is concluded that as live feeds to coral trout larvae, copepods and copepods-rotifers accelerate the growth of larvae (1), copepods-rotifers increase larval survival rate and seed production (2), copepods and copepods-rotifers increase thyroid hormone levels, which accelerate the achievement of the highest levels of thyroid hormone as well as increasing the number and size of thyroid follicles of larvae (3) and copepods-rotifers increase the activity of digestive enzymes of larvae (4). Therefore, feeding copepods-rotifers as live feed is strongly recommended in larviculture of coral trout.

Keywords: copepods, rotifers, growth, thyroid, digestive enzyme, seed production, coral trout larvae