ABUNDANCE AND BIOMASS OF PROKARYOTIC AND EUKARYOTIC MICROORGANISMS COUPLED WITH ENVIRONMENTAL FACTORS IN AN ARID MULTI-POND SOLAR SALTERN (SFAX, TUNISIA)

Jannet Elloumi, Wassim Guermazi, Habib Ayadi, Abderrahmen Bouain, Lotfi Aleya-2009
Journal of the Marine Biological Association of the United Kingdom 89:243-253

Abstract:
The distribution of abundance and biomass of prokaryotes, flagellates, ciliates and phytoplankton, were studied in five ponds of increasing salinity in the Sfax solar saltern (Tunisia) coupled with environmental factors. The results showed that abundance of eukaryotic microorganisms decreased with increasing salinity of the ponds whereas prokaryotes (heterotrophic bacteria and Archaea) were abundant in the hyper-saline ponds. Phototrophic picoplankton was found in a large range of salinity values (70 and 200‰). Phototrophic non-flagellated nanoplankton which dominated in the first sampled pond was substituted by phototrophic flagellated nanoplankton in the other ponds. Heterotrophic nanoplankton dominated in the crystallizer pond but its quantitative importance declined in the less saline ponds. Diatoms and dinoflagellates were the major contributors to phytoplankton abundance in the first ponds (>90% of total abundance). Ciliated protozoa were found in all the ponds except in the crystallizer in which prokaryotes proliferated. Oligotrichida and Heterotrichida were the most abundant ciliate groups. Overall, species richness decreased with salinity gradient. We propose a simplified diagram of the Sfax saltern's food web showing the dominant role of the microbial loop along the salinity gradient.

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ARE MONOALGAL DIETS INFERIOR TO PLURIALGAL DIETS TO MAXIMIZE CULTIVATION OF THE CALANOID COPEPOD TEMORA STYLIFERA?

I. Buttino, A. Ianora, S. Buono, V. Vitello, G. Sansone, A. Miralto-2009
Journal Marine Biology 156(6): 1171-1182

Abstract:
Temora stylifera adult copepods were fed with four different monoalgal diets and six combinations of the same cultures for 15 days. Fecundity, hatching success, number of cannibalized embryos, fecal pellet production, adult mortality and naupliar recruitment were compared, in order to find the best diet for this species. Phytoplankton species tested were Prorocentrum minimum (PRO); Isochrysis galbana (ISO); Tetraselmis suecica (TETRA) and Rhodomonas baltica (RHO) which were supplied alone or in different combinations and at various concentrations ranging from a minimum of 1 mg C L−1 day−1 to a maximum of 66 mg C L−1 day−1. Of the ten diets tested, ISO was the worst and was unable to sustain egg production and adult survival possibly because adults were unable to ingest this alga due to its small size. TETRA was also a poor food since it negatively impacted egg production and adult survival, as well as egg hatching success, possibly due to the lack of essential compounds necessary for optimal embryogenesis. RHO and PRO were the best foods inducing highest egg production, hatching success and naupliar recruitment. Even if mean egg production rates were similar to those obtained with some mixed diets, carbon intake concentrations with mixed diets were from 3 to 33 and from 6.6 to 66 times higher than with RHO and PRO given alone, respectively. Mixed diets of ISO and PRO, especially when supplied at higher concentrations (66 mg C L−1 day−1), had a negative effect on egg hatching success and adult survival, with a corresponding reduction in naupliar recruitment. On the other hand, mixed diets of TETRA and PRO promoted high naupliar recruitment but values were similar to PRO offered alone. Our results indicate that a good monoalgal diet such as RHO and PRO can be as effective as a mixed diet to sustain the mass cultivation of T. stylifera.

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EGG BANKS IN HYPERSALINE LAKES OF THE SOUTH-EAST EUROPE
Salvatore Moscatello, Genuario Belmonte-2009
Saline Systems 5(3)
Abstract:
The cyst banks of 6 coastal hypersaline lakes of South-East Europe have been investigated. The study concerned the bottom sediments of Khersonesskoe and Koyashskoe lakes in the Crimea (Ukraine), Nartë saltworks (Albania), Vecchia Salina at Torre Colimena (Apulia, Italy), Pantano Grande and Pantano Roveto at Vendicari (Sicily, Italy). A total of 19 cyst types were recognised. The cyst banks of lakes were found to be well separated in the representation derived from a statistical multivariate data analysis. For all the lakes examined a comparison was possible between the resting community in sediments (cyst bank) and the active one in the water. The cyst banks contained more species than those recorded over a multi-year sampling effort in the water column. The study of cyst hatching, performed on 5 cyst types under lab conditions, demonstrated that cysts do not hatch under the same conditions. Furthermore, each cyst type shows a wide range of preferential hatching conditions, which allow us to confirm the ecological generalism of salt lake species.
(Laboratory of Zoogeography and Fauna, Department of Biological and Environmental Sciences and Technologies, University of Salento, Via Prov.le Lecce-Monteroni, 73100 Lecce, Italy)

CONTROL OF LIGHT CONDITION AFFECTS THE FEEDING REGIME AND ENABLES SUCCESSFUL EYE MIGRATION IN ATLANTIC HALIBUT JUVENILES
Torstein Harboe, Anders Mangor-Jensen, Mari Moren, Kristin Hamre, Ivar Rønnestad-2009
Aquaculture 290(3-4): 250-255
Abstract:
Incomplete eye migration is one of the major problems in intensive production of juvenile Atlantic halibut. More than 60% of an average juvenile population reared according to best practice suffers from this abnormality. In commercial production, these fish are discharged and represent a substantial economic loss and a large welfare problem. In the present investigation it is demonstrated that by controlling diurnal light and darkness periods together with a meal based feeding regime, incomplete eye migration can be dramatically reduced in production systems for Atlantic halibut.

Control groups were reared under continuous light conditions, whereas the experimental groups were given 7 h of darkness and 17 h of light during a 24 hour cycle, in a period lasting from 12 to 35 days post first-feeding. Otherwise both groups were reared under continuous light conditions. All larvae were fed short time enriched Artemia supplied two times daily.

The experimental conditions did not affect the overall growth or survival up to day 85 after first feeding. However, 27 ± 3% of the fry reared under continuous light conditions had complete eye migration, whereas in juveniles reared under shifting light and darkness conditions, complete eye migration was 85 ± 7%. These results represent a major improvement in production systems for Atlantic halibut juveniles.
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PREDATION OF SHORE CRABS (CARCINUS MAENAS (L.)) AND STARFISH (ASTERIAS RUBENS L.) ON BLUE MUSSEL (MYTILUS EDULIS L.) SEED FROM WILD SOURCES AND SPAT COLLECTORS
Pauline Kamermans, Monique Blankendaal, Jack Perdon-2009
Aquaculture 290(3-4):256-262
Abstract:

In The Netherlands, several pilot projects are carried out on the use of spat collectors as an additional supply of seed for bottom culture of mussels (Mytilus edulis). The method proves to be successful in yielding substantial amounts of seed. One of the conditions for successful application of collector seed on bottom plots is a good yield of the seed on bottom plots. Mussel seed of different origin (from wild littoral and sublittoral beds or from collectors) was offered to predators (crabs Carcinus maenas and starfish Asterias rubens) and seed survival was monitored. In addition, the effect of density and size of collector seed on predation was studied. Circular cages containing predators and seed were placed in a basin with running seawater, or suspended from a jetty in a harbour. Two size classes of predators and three size classes of seed were used. Survival was monitored. Consumption of mussel seed by starfish was much lower than by crabs. Maximum observed consumption rates were 23 seed/day/crab and 1 seed/day/starfish. Consumption rates increased significantly with decreasing seed size. Seed larger than 20 mm were consumed at a significantly lower rate. Seed density did not affect survival. Collector seed was not consumed at higher rates than wild littoral or sublittoral seed. In conclusion, collector seed can be a promising additional source of seed for bottom culture of mussels in The Netherlands.
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IDENTIFICATION OF DIGESTIBLE CARBOHYDRATE SOURCES FOR INCLUSION IN FORMULATED DIETS FOR JUVENILE SPINY LOBSTERS, JASUS EDWARDSII
Cedric J. Simon-2009
Aquaculture 290(3-4): 275-282
Abstract:
Carbohydrates are a key ingredient in crustacean formulated diets because of their potential to greatly improve production efficiency. For the culture of spiny lobsters where daily food intake is limited, carbohydrates have the potential for delivering a low cost source of energy that could spare protein for growth. Therefore, the digestibility of different carbohydrate sources including refined sugars, mussel glycogen, algal polysaccharides, carboxymethyl cellulose (CMC) and starches (i.e., native, dextrinised, gelatinised) were assessed in juvenile spiny lobster (30–60 g). This was done by measuring the rate of carbohydrate hydrolysis in vitro using enzyme homogenates and postprandial haemolymph glucose concentrations following ingestion of semi-purified diets containing different carbohydrate levels and sources. Fresh mussel gonads and a practical formulated diet were also included for comparison. Storage polysaccharides (i.e., gelatinised starches, dextrin, mussel glycogen) and the structural polysaccharide CMC were the best digested carbohydrate sources in vitro. CMC was more digestible than the algal polysaccharides, agar and alginate, and therefore may have potential as a binding agent in formulated diets for J. edwardsii. The poor hydrolysis of sucrose and trehalose suggests that their use as an energy source might be limited in J. edwardsii. Native wheat starch was the best digested among the various plant starches tested. Gelatinisation of starches markedly improved their digestibility suggesting that pre-treatment of the dietary starch source would have a beneficial influence on the digestibility of diets for J. edwardsii. Consumption of the semi-purified diets (i.e., 1% BW) containing the digestible starch sources (i.e., 27% dry weight), as well as the practical diet, resulted in high haemolymph glucose concentrations (> 5 mmol l− 1) and a prolonged hyperglycaemic response (> 24 h) suggesting that these carbohydrate sources are well digested and absorbed, but possibly poorly utilised. In contrast, the fresh mussel gonad diet (i.e., 27% glycogen by dry weight) appeared to be better utilised (reduced glycaemia after 12 h). A lower inclusion level (i.e., 7%) of gelatinised maize starch reduced the peak (1.87 mmol l− 1) and extent (12 h) of the glycaemic response. Using lower inclusion levels (< 27%) of the rapidly digested starches (i.e., gelatinised, dextrinised) identified in this study, or incorporating digestible carbohydrate sources resulting in slower appearance of haemolymph glucose (i.e., native wheat starch, CMC), in formulated diets may have the potential to improve their utilisation for growth of juvenile spiny lobsters.
(National Institute of Water and Atmospheric Research, P.O. Box 14 901, Kilbirnie, Wellington, New Zealand; c.simon@niwa.co.nz)

CULTURE OF THE CALANOID COPEPOD PSEUDODIAPTOMUS EURYHALINUS (JOHNSON 1939) WITH DIFFERENT MICROALGAL DIETS

A.C. Puello-Cruz, S. Mezo-Villalobos, B. González-Rodríguez, D. Voltolina-2009

Aquaculture 290(3-4): 317-319

Abstract:
The copepod Pseudodiaptomus euryhalinus was fed 320 cells μL− 1 of monoalgal cultures of Chaetoceros muelleri, Nannochloropsis oculata, Isochrysis galbana, Tetraselmis suecica, or a commercial frozen concentrate of Tetraselmis sp., and the diet which gave the best production was compared in a second experiment to three mixed diets: C. muelleri:I. galbana supplied in 1:1 and 2:1 cell ratios and C. muelleri:I. galbana:frozen Tetraselmis sp. in 2:2:1 ratio. These gave better results than the cultures of N. oculata, I. galbana, T. suecica and the frozen Tetraselmis concentrate, but the production was similar to that obtained with C. muelleri supplied as a monoalgal diet, showing that the addition of C. muelleri may improve the performance of other monoalgal diets, whereas the addition of other microalgae is unlikely to improve the results obtained when C. muelleri is supplied as a monoalgal diet.

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VARIATION IN SPAWNING RESPONSES, EGG AND LARVAE PRODUCTIONS FROM INDUCED ROHU (LABEO ROHITA) DURING PRE-MONSOON AND MONSOON SEASONS: RELATIONSHIP WITH HORMONAL CHANGES AND OOCYTE RESPONSIVENESS DURING FINAL MATURATION

Subrata Dasgupta, Sampad Kumar Sarkar, Niranjan Sarangi, Samir Bhattacharya-2009

Aquaculture 290(3-4): 320-326

Abstract:
Early induced spawning in captive rohu (Labeo rohita) often encounters with reduced spawning performances and devaluation of final product. The present study attempted to gain insight into the problems associated with poor performance of rohu during pre-monsoon spawning. A combination of sGnRHa and domperidone was used to induce final oocyte maturation (FOM) and ovulation in rohu during early (pre-monsoon, PM) and normal (monsoon, MN) spawning. The spawning performance parameters such as, spawning response, production and quality of egg and larvae showed significantly lower values ($p < 0.05$) in PM, when compared with MN spawning. The egg and spawn productions were recorded as 2.6 ± 0.05 and 2.41 ± 0.05 during the MN season, which were reduced by almost 50% in the PM season. Moreover the quality of egg and hatchling was devaluated significantly ($p < 0.05$) and exhibited higher percentage of mortality and abnormality in PM than those recorded in the MN season. The plasma concentration of carp gonadotropin (cGtH), 17β-estradiol (E) and 17α20β-dihydroxy-4-pregnen-3-one (DP) in relation to progress of FOM and ovulation at different seasons exhibited marked variation in hormonal profiles particularly in E and DP of PM fish. Higher initial plasma E (3.8 ± 0.3) and a distinct E peak clearly indicated the lack of transition from vitellogenic to post-vitellogenic stages that prevailed in PM rohu. Delayed DP and cGtH surge during FOM and ovulation resulted in longer latency period in spite of higher water temperature (31.5 °C) that prevailed during the PM period. In-vitro study on oocyte maturational competence (OMC) clearly depicted the lack of maturational competence in ovarian follicles during PM than MN in rohu. However priming the fish with purified carp gonadotropin (PCG) enhanced the acquisition of OMC in PM rohu in such an extent, that no marked seasonal differences ($p > 0.05$) in OMC were remained further, when compared with MN follicles. The PCG mediated acquisition of maturational competence was found to be dependent fully on new mRNA and protein synthesis in PM fish. The present study clearly demonstrated that the oocytes' unresponsiveness to hormonal induction was mainly responsible for reduced spawning performance in PM rohu, which could be ameliorated through PCG priming to achieve better spawning response in rohu during the pre-monsoon period. Thereby, the rohu fry production could be initiated successfully as early as May, allowing public and private hatcheries to produce larger age-0 rohu fingerlings ensuring reliable steady source of stocking materials for grow-out system earlier in the season.

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DYNAMIC CHANGES IN GENE EXPRESSION DURING VITELLOGENIC STAGES OF THE WHITE SHRIMP: FENNEROPENAEUS MERGUIENSIS DE MAN

Monwadee Wonglapsuwan, Amornrat Phongdara,Wilaiwan Chotigeat-2009

Aquaculture Research 40(6): 633 – 643

Abstract:

Ovarian maturation is a crucial step for shrimp brood stock. A suppressive subtractive hybridization was used to identify differentially expressed genes in the ovaries during vitellogenesis of Fenneropenaeus merguiensis. Three- to sevenfold up-regulated genes were selected. A blast search identified nine unique genes. The genes that may be involved in ovarian maturation, namely translationally controlled tumour protein (TCTP), heat shock protein 70 (HSP70), H-L(3)MBT-LIKE, shrimp ovarian peritrophin (SOP), vitellin (Vn), thrombospondin (TSP) and ribosomal protein L10a (RPL10a), were further studied. The transcripts of HSP70, TCTP, SOP and RPL10a in the ovary showed their highest expression in the early stage and declined in the later stages. In contrast, the transcripts of the H-L(3)MBT-LIKE, TSP and Vn genes increased from the early stage to be significantly up-regulated during the late stage. A comparison of gene expression among organs during the vitellogenesis showed that the transcripts of HSP70, SOP, H-L(3)MBT-LIKE and TSP were down-regulated in the brain, intestine, hepatopancreas and lymphoid (except for TSP) when compared with their expression in shrimp with non-developed ovaries. The mRNA of TCTP and RPL10a was significantly over-expressed in the lymphoid and heart, whereas TCTP transcripts were significantly down-regulated in the brain during the vitellogenesis. The molecular behaviour of the transcripts in this study may, in the future, lead to an ability to stimulate the ovarian development in shrimp.

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QUANTIFICATION OF VITELLIN/VITELLOGENIN-LIKE PROTEINS IN THE OYSTER CRASSOSTREA CORTEZIENSIS (HERTLEIN 1951) AS A TOOL TO PREDICT THE DEGREE OF GONAD MATURITY

Fabiola G. Arcos, Ana María Ibarra, María del Carmen Rodríguez-Jaramillo, Ethel Awilda García-Latorre, Celia Vazquez-Boucard-2009

Aquaculture Research 40(6): 644 – 655

Abstract:

The oyster's reproductive process is poorly documented, especially in terms of a quantitative approach. In recent years, investigations with this species have been directed at determining important reproductive factors. Within this scope, techniques that allow standardized and accurate quantitative estimations of gonad development have become of primary importance. In this study, the histological characteristics and the levels of vitellin/vitellogenin-like proteins (Vn/Vtg) from ovaries of the Mexican Pacific 'pleasure' oyster Crassostrea corteziensis (Hertlein 1951) were analysed during different stages of gonad maturation using quantitative histological techniques and an enzyme-linked immunosorbent assay. This was performed in order to evaluate a possible quantitative tool to predict the degrees of gonad maturity and to analyse the biological implications of the findings relative not only to broodstock conditioning but also to natural populations. Using this information, we expect to be able to undertake further research on different reproductive aspects of this oyster species, including, among others, evaluation of the response in Vn/Vtg concentrations to different diets and environmental conditions during laboratory conditioning.

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COMPARATIVE FATTY ACID COMPOSITION OF EGGS FROM WILD AND CAPTIVE BLACK SEA BASS, CENTROPRISTIS STRIATA L.

Gloria T. Seaborn, Theodore I. J. Smith, Michael R Denson, Abigail B. Walker, David L. Berlinsky-2009

Aquaculture Research 40(6): 656 – 668

Abstract:

Lipid content, lipid class and fatty acid compositions were determined in eggs from wild and captive black sea bass, Centropristis striata L., from northern (New England) and southern (South Carolina) regions to determine the effects of diet on egg composition and fertilization success. The formulated diets fed to the northern captive (NC) fish were higher in total lipids (22%) compared with the cut fish and squid diet fed to the southern fish (SC; 3.3% lipid) and had a higher relative amount of linoleic acid (LA) and lower relative amounts of docosahexaenoic acid (DHA) and arachidonic acid (AA). These dietary differences were broadly reflected in the egg lipid composition. The LA levels were higher in all lipid classes in eggs of NC fish while AA levels were lower. The DHA was higher in the major polar lipids (PL) (phosphatidylcholine and phosphatidylethanolamine) of SC eggs compared with NC. Compared with wild fish, both captive groups produced eggs with PLs richer in LA and lower in DHA and AA. Over all fish groups, fertilization success was directly correlated with levels of DHA and AA in the PLs and was inversely correlated with LA levels.

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EFFECT OF FISHMEAL REPLACEMENT WITH ARTEMIA BIOMASS AS A PROTEIN SOURCE IN PRACTICAL DIETS FOR THE GIANT FRESHWATER PRAWN MACROBRACHIUM ROSENBERGII

Nguyen Thi Ngoc Anh, Tran Thi Thanh Hien, Wille Mathieu, Nguyen Van Hoa, Patrick Sorgeloos-2009

Aquaculture Research 40(6): 669 – 680

Abstract:

A 30-day feeding experiment was conducted in 160-L plastic tanks to evaluate the potential use of Artemia biomass as a protein source in practical diets for postlarval Macrobrachium rosenbergii (initial mean weight of 12.12–12.29 mg). Nine isoenergetic and isonitrogenous experimental diets (approximately 40% crude protein) were formulated by replacing levels of the fishmeal (FM) protein difference either with dried or frozen Artemia (0, 25, 50, 75 and 100%). The 0%Artemia treatment, in which Peruvian FM was the only main protein source, was considered to be the control diet. The results showed that prawn postlarvae (PLs) fed the FM control diet had a lower survival (46%) compared with all Artemia diets. Significant differences ($P<0.05$) were, however, only found at 75% and 100%Artemia protein inclusion levels (survival of 68–77%). A gradual increase in growth performance (live weight gain, specific growth rate and total length) of the prawns was achieved on increasing dietary inclusion of Artemia protein. Additionally, the size distribution exhibited the same response as growth performance. However, prawns fed the frozen Artemia diets showed a better performance than the ones fed the dried Artemia diets. It can be suggested that Artemia biomass may totally replace FM in practical diets for PLs of the freshwater prawn M. rosenbergii.

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A SIMPLE METHOD FOR PURIFYING THE WHITE SPOT SYNDROME VIRUS USING ULTRAFILTRATION

Martina Hilda Gracia-Valenzuela, Daniel Coronado-Molina, Jorge Hernández-López, Teresa Gollas-Galván-2009

Aquaculture Research 40(6):737 – 743

Abstract:

A very simple and efficient method was developed for isolating intact White Spot Syndrome Virus (WSSV) particles from infected Litopenaeus vannamei tissue. No density gradient centrifugation, ultracentrifugation or protease inhibitors were required for the purification of intact WSSV virions using microfilters (100 kDa cut-off) combined with several steps of conventional centrifugation procedures. A mortality assay was run using healthy shrimp to prove that the virions obtained were infective. The concentrated viral preparations were further studied using polyacrylamide gel electrophoresis (PAGE). At least five distinct protein bands were detected when intact purified WSSV virions were found by sodium dodecyl sulphate-PAGE, followed by Coomassie Brilliant R-250 staining. The estimated molecular weights of these proteins were 23, 24, 29, 32 and 42-kDa, which could correspond to viral protein. Using this method, the virus does not lose its ability to infect healthy shrimp.
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A METHOD FOR THE HISTOCHEMICAL LOCALIZATION OF DIGESTIVE ENZYMES IN WHOLE FREEZE-SUBSTITUTED LARVAL FISH EMBEDDED IN GLYCOL METHACRYLATE

Grant W Vandenberg, Diane Gagnon, Shannon L Scott, Joël de laNoüe-2009
Aquaculture Research 40(7): 818 – 824

Abstract:
In order to study the localization of digestive enzymes in larval walleye (Sander vitreus vitreus), a novel method of low-temperature processing of whole, unfixed larvae and subsequent embedding in glycol methacrylate (GMA) was developed. Larval walleye aged 2–10 days post hatch were flash-frozen in liquid nitrogen and transferred into pre-chilled acetone for 12 h at a temperature of −25 °C. Acetone was gradually replaced with increasing concentrations of GMA resin monomer over a 6-h period. The polymer (100%) was further allowed to infiltrate the larvae for 36 h. Resin-embedded larvae were transferred to embedding moulds and polymerized overnight at −25 °C. Four micrometre sections were stained to identify either alkaline phosphatase, non-specific esterase, aminopeptidase M or dipeptidyl peptidase IV. All enzymes studied were readily detected and accurately localized, and no enzyme diffusion was observed. Therefore, freeze substitution combined with low-temperature GMA embedding allows the maintenance of excellent tissue morphology and accurate enzyme localization in whole larval walleye specimens from 2 to 10 days post hatch. It is recommended, however, that samples be frozen in pre-cooled fluorocarbon-based liquid coolants in order to assure optimal tissue preservation.
(Groupe de recherche en recyclage biologique et aquiculture. Département des sciences animales, Université Laval, QC, Canada G1V 0A6; email of G. Vandenberg:grant.vandenberg@fsaa.ulaval.ca)

DEVELOPMENTAL STAGES, LARVAL AND POST-LARVAL GROWTH OF ANGELWING CLAM PHOLAS ORIENTALIS

Beewah Ng, Aileen Shau Hwai Tan, Zulfigar Yasin-2009
Aquaculture Research 40(7): 845 – 851

Abstract:
Angelwing clam were induced to spawn by thermal stimulation. Mature eggs measured 50 μm in diameter. Cell division occurred within 36 min after fertilization. Mobile trochophore larvae were seen after 12 h and larvae developed within 18 h. Reared on a diet of Isochrysis galbana the larvae reached the umbo stage in 6–7 days. On day 10 the foot could be seen and settlement occurred if a suitable substrate was present. The larvae completed metamorphosis into juveniles within 20 days after settling.
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EFFECT OF LIGHT REGIMES ON THE UTILISATION OF AN EXOGENOUS CARBON SOURCE BY FRESHWATER BIOFILM BACTERIAL COMMUNITIES

Gavin Lear, Susan J. Turner, Gillian D. Lewis-2009

Journal Aquatic Ecology 43(2): 207-220

Abstract:

This study reports the novel use of nucleic acid stable isotope probing (NA-SIP) to identify metabolically active ([13C]-acetate assimilating) bacteria in freshwater biofilms. Currently, a little is known of the factors affecting the structure and activity of these complex microbial biofilm communities, although it is likely that they are influenced by riparian vegetation through attenuation of light and alteration of allochthonous inputs of carbon. NA-SIP was used to investigate the effect of varying light regimes on [13C]-acetate assimilating bacteria within laboratory biofilm microcosms. Differences in clone libraries of 16S rRNA and rRNA genes from 13C-labelled and unlabelled nucleic acids indicated differential uptake of acetate and the rapid transfer of 13C to organisms at a higher trophic level. Biofilm communities incubated in the dark changed least over time and retained a significant fraction of phototrophic organisms. Incubation under elevated light caused the greatest change in bacterial community structure. Contrary to expectation, a complete loss of chlorophyll containing organisms occurred within this treatment, challenging current thinking that elevated light promotes communities dominated by photoautotrophs in nutrient enriched environments.

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USING CHLOROPHYLL FLUORESCENCE TO MONITOR YIELDS OF MICROALGAL PRODUCTION

Mitsuko Obata, Tatsuki Toda, Satoru Taguchi-2009

Journal Journal of Applied Phycology 21(3): 315-319

Abstract:

A monitoring system for microalgal production was developed over a 12:12-h light:dark cycle at a steady state of growth to test the feasibility of estimating carbon production using the fluorescence method. An empirical linear relationship between the electron transport rate, based on the fluorescence method, and carbon assimilation, based on the conventional carbon method, was successfully obtained. The results demonstrate the relevance of the electron transport rate in determining carbon production of microalgae under steady-state growth conditions.

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SHORT COMMUNICATION

EFFECTS OF A PEROXIDE-BASED COMMERCIAL PRODUCT ON BACTERIAL LOAD OF LARVAL REARING WATER AND ON LARVAL SURVIVAL OF TWO SPECIES OF SPARIDAE UNDER INTENSIVE CULTURE: PRELIMINARY STUDY

Gemma Giménez-Papiol, Francesc Padrós, Ana Roque, Alicia Estévez, Dolores Furones-2009

Aquaculture Research 40(4): 504 – 508

Abstract:

Larvae of two Mediterranean Sparidae species, Sparus aurata and Dentex dentex, were used to test the efficacy of a peroxide-based product (Ox-Aquaculture©) on the reduction in bacterial load in larval rearing water and its effects on larval survival. Eleven-day-old S. aurata larvae and 15-day-old D. dentex larvae were exposed to different concentrations of Ox-Aquaculture© (50, 100 and 200 mg L−1, and 20 and 50 mg L−1 respectively) for 1 h. Results indicated that 50 and 20 mg L−1 were the most effective concentrations for the reduction in bacterial load (at least one order of magnitude) after 1 h treatment, without affecting larval survival and/or vitality in 11 dph S. aurata and 15 dph D. dentex larvae respectively. Ox-Aquaculture© concentrations of 200 and 50 mg L−1 during 1 h affected negatively final survival rate of the larvae of S. aurata and D. dentex respectively.

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EFFECTS ON GROWTH AND SURVIVAL OF LOACH (MISGURNUS ANGUILLICAUDATUS) LARVAE WHEN CO-FED ON LIVE AND MICROPARTICLE DIETS

Youji Wang, Menghong Hu, Weimin Wang, Ling Cao-2009

Aquaculture Research 40(4): 385 – 394

Abstract:

The effectiveness of co-feeding loach (Misgurnus anguillicaudatus) larvae with live and microparticle diets on weaning performance was described here. Dry weight, total length, length and weight-specific growth rate (SGR) and survivals were monitored at 23–25 °C from the 4th day post hatching (dph) in different diet regimes, which included: microparticle diets (A), live cladocerans (B), enriched cladocerans (C), half microparticle diets plus half live cladocerans (D) and half microparticle diets plus half enriched cladocerans (E). The SGR (L and W) were significantly lower in treatment A than in other treatments after completing metamorphosis (day 4–20, $P<0.05$). On 30 dph, dry weight (mg) and total length (mm) were significantly lower in treatment A than in other treatments ($P<0.05$). There were no significant differences in growth in treatments B, C, D and E before 30 dph. However, when live feed was withdrawn from 31–60 dph, in metamorphosed fish, there were significant differences ($P<0.05$) among the treatments in survival and growth. Metamorphosed fish in treatment E had higher survival than the fish in other treatments at the end of the experiment. The SGR (L and W) of weaned fish in treatments B and C were similar but lower than in treatments A, D and E respectively. However, dry weight and total length in treatment A were significantly lower than in treatments D and E. It is suggested that weaning of M. anguillicaudatus from early development would appear to be feasible and that larval co-feeding improves the growth and the survival.

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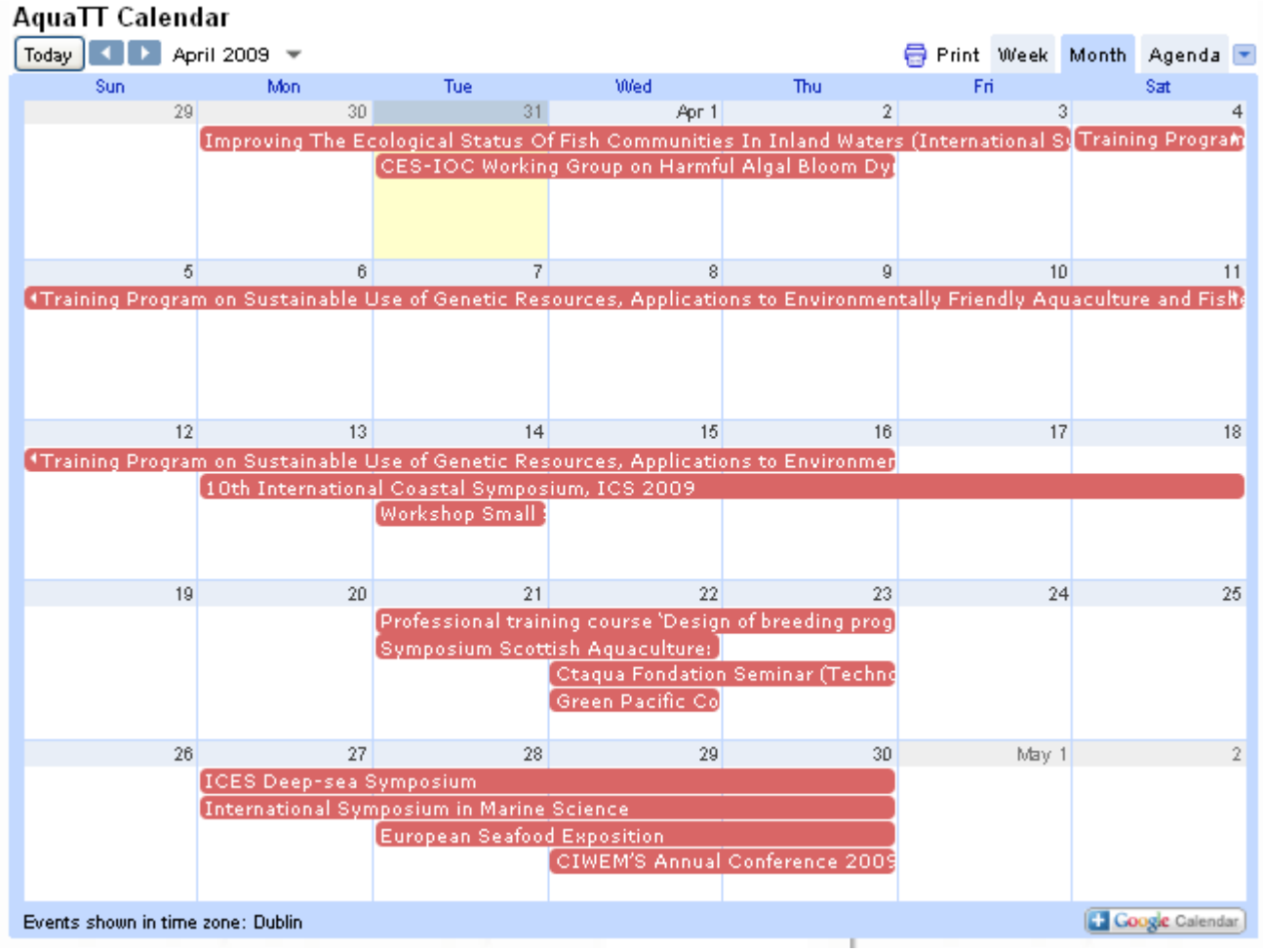
AQUA TT NEWSLETTER MARCH 2009 - ANNOUNCEMENTS

This is the Announcement Supplement, which comes with the AquaTT Training News newsletter. These are free e-mail news services provided by AquaTT on European Education, Training and Events in Aquaculture.

Please submit any relevant information for dissemination in the newsletter to news@aquatt.ie

Please check the AquaTT Calendar for a comprehensive overview of all Marine Sector related events, including details.

April 2009



May 2009

- Workshop: "Controlling Listeria in Ready-to-Eat Foods: Working towards Global Consensus and Harmonization", May 5-7, Amsterdam (Netherlands)

- Aquaculture Canada 2009, May 10-13 2009, Nanaimo, British Columbia (Canada)

- 1st National Coldwater Fishes Conference, May 12-13, 2009, Tonekabon (Iran)

- Training Program on "Hatchery and Farming Technologies for Nile Tilapia and African Catfish", 12-21 May 2009, Abbassa, Sharkia, (Egypt)

- SUDEVAB project dissemination day, May 19, Galway (Ireland)

- Shellfish Association of Great Britain (SAGB) 40th Annual Conference, 19 -20 May 2009, London (UK)

- 14th Shrimp School, May 19-21, University of Florida campus, Gainesville, Florida (US)

- European Maritime Day, 20 May 2009

- World Aquaculture 2009, 25 – 29 May 2009, Veracruz (Mexico)

- 8th Indo-Pacific Fish Conference & 2009 ASFB Workshop & Conference, 31 May to 5 June, 2009 , Freemantle (Western Australia)

June 2009
- Trans-Atlantic Fisheries Technology Conference (TAFT), 3-5 June 2009, Copenhagen (Denmark)

- International Conference on Molluscan Shellfish Safety (call for abstracts), 14-19 June 2009, Nantes (France)

July 2009
- Symposium in 'Genomics in Aquaculture' 5-7 July 2009, Bodø (Norway)

- People and the Sea V: living with uncertainty and adapting to change', 9-11 July 2009, Amsterdam (the Netherlands)

August 2009
- Aquaculture Europe 2009, 14-17 August 2009, Trondheim (Norway)

- International Aquaculture Biosecurity Conference: Practical Approaches for the Prevention, Control and Eradication of Disease August 17-18 2009 Trondheim (Norway)

- Aqua Nor 2009, 18-21 August 2009, Trondheim (Norway)

September 2009
- The 13th European Congress of Ichthyology - ECI XIII, September 6 -11 2009, Klaipeda (Lithuania)

- Second International Workshop on Biology of Fish Gametes, 9 - 11 September, 2009, Valencia (Spain)

- Conference of European Association of Fish Pathologists (EAFP) 2009, 14-19 September 2009, Prague (Czech Republic)

- 3rd Joint Trans-Atlantic Fisheries Technology Conference (TAFT), 15-18 September 2009, Copenhagen (Denmark)

- World Fishing Exhibition 2009 + Aqua Farming International Exhibition 2009, 16-19 September 2009, Vigo (Spain)

- NovelQ Seminar: High pressure processing for safe, high-quality seafood, 17 September 2009, Stavanger (Norway)

- 2009 ICES Annual Science Conference, 21-25 September 2009, Berlin (Germany)

October 2009
- IAFI World Seafood Congress, 5-9 October 2009, Agadir (Morocco)

- Acquacoltura Med Conference 2009, 22-24 October Verona (Italy)

November 2009
- Latin American Conference on Culture of Native Fish, 3-6 November 2009, Province of Buenos Aires (Argentina)

- Asia Pacific Aquaculture Conference, 3-6 November 2009, Kuala Lumpur, (Malaysia)

- First International Symposium on Aquaculture and Fisheries Education, 27-30 November 2009, Bangkok (Thailand)

May 2010
- Australian Aquaculture International Conference, 23-26 May 2010 (Hobart, Tasmania)

June 2010
- Global Conference on Aquaculture 2010, 9-12 June 2010, Thailand (Bangkok)

August 2010
- Aquacultural Engineering Society Issues Forum, 18-19 August 2010, Virginia (USA)

- The 8th International Conference on Recirculating Aquaculture, 20-22 August 2010, Virginia (USA)

About AquaTT

AquaTT devised the free news service "TRAINING NEWS", a free monthly electronic newsletter that serves as an important communication channel for education and training opportunities for the Aquaculture, Fisheries and related Maritime sectors in Europe. It provides information on education and training developments, upcoming events, opportunities for collaboration, job vacancies and student activities.
All old Training News is archived on the AquaTT site: http://www.aquatt.ie/

AquaTT welcomes any feedback regarding content, presentation and user-friendliness of the newsletter. Please forward this mail to any colleagues that may be interested. Please submit any relevant information for dissemination in the newsletter to news@aquatt.ie