C-127

Comparison of European sea bass (*Dicentrarchus labrax*) from organic and semi-intensive rearing systems

Duilio Majolini[1], Marco Tazzoli[1], Angela Trocino[2], Francesco Pascoli[3], Daniela Bertotto[3], Gerolamo Xiccato[1]

[1]*Dipartimento di Scienze Animali;* [2]*Dipartimento di Sanità Pubblica, Patologia Comparata e Igiene Veterinaria;* [3]*Dipartimento di Scienze Sperimentali Veterinarie, Università di Padova, Italy*

Corresponding author: duilio.majolini@unipd.it

The study aimed to compare biometric and rheological traits and chemical composition of sea bass coming from the organic and semi-intensive rearing systems of an Italian fish farm (Veneto Agricoltura). The two systems differed for the diet, organic and conventional, while water conditions and stocking density were similar. After 18 months of rearing, 40 specimens (20 per rearing system) were slaughtered by immersion in ice slurry and analysed the day after catch. Biometric traits, dressing percentage and fillet pH, CIE L*a*b* colour and texture were measured. Chemical composition and fatty acid profile of the diets and sea bass fillets were analysed. Individual data were submitted to ANOVA by GLM procedure of SAS. Sea bass showed similar weight at slaughter (447 *vs* 421 g; P>0.05) and no difference in biometric traits or dressing percentage. Fillets showed similar texture profile, pH and L* and a* indexes, while b* index was higher in organic sea bass than in semi-intensive sea bass (1.39 *vs* 0.54; P<0.01). Fillet proximate composition did not change, while fatty acid profile differed according to the composition of the diets: in particular, organic sea bass showed higher proportion of saturated fatty acids (FA) (23.7 *vs* 22.2%), monounsaturated FA (33.4 *vs* 31.3%) and n-3 polyunsaturated FA (22.7 *vs* 14.4%) and a lower proportion of n-6 polyunsaturated FA (16.0 *vs* 29.1%) compared to semi-intensive sea bass (P<0.001). The n3/n6 ratio was higher in the organic fish (1.42 *vs* 0.49; P<0.001). In conclusions, differences between organic and semi-intensive sea bass concerned their nutritional value and exclusively depended on the feeding regime.

C-128

Growth performance of different rainbow trout (*Oncorhynchus mykiss*) strains reared in Trentino (Northern Italy)

Filippo Faccenda[1,3], Emilio Tibaldi[2], Giuliana Parisi[3], Oreste Franci[3], Fernando Lunelli[1]

[1]*Istituto Agrario di San Michele All'Adige, S. Michele all'Adige, Italy*

[2]*Dipartimento di Scienze Animali, Università di Udine, Italy*

[3]*Dipartimento di Biotecnologie Agrarie, Università di Firenze, Italy*

Corresponding author: filippo.faccenda@iasma.it

We will present some results of an ongoing project aimed at analysing the major biotic and abiotic factors that influence the rainbow trout (*O. mykiss*) productive yield in the Trentino region (Northern Italy). Five trout strains were compared for their overall farming performance and suitability to be reared in the local farms. Eyed-egg samples of different strains were obtained from local and foreign suppliers. In the first part of the trial, the strains were compared in terms of egg size, hatching and growth rates up to the parr stage in a single farm and the intraspecific genetic variability was assessed using a microsatellites technique by analysing DNA extracted from random samples of caudal fin tissue. Significant among-strains differences in growth performance were found after 8 rearing months. In the second phase of the trial, parrs of each strain were divided into 4 lots. Then the lots of the 5 strains were transferred to 4 selected Trentino trout farms to carry out a performance test up to a market size of around 0.7 kg. Regardless of the location, all fish lots were kept at the same density and were fed the same commercial trout feed, six days a week. Individual weight and length were measured on random samples of 100 fish per lot every 2 months. At the same time, major water parameters were registered in the different farms. Specific growth rate (SGR), thermal growth rate (TGR), condition factor and feed conversion ratio (FCR) were calculated. Statistical analyses were performed with SAS and STATISTICA 9.0. The growth graphs fit quadratic equations and average daily gain ranged from 1.46 to 1.77 g. Among-strains differences in growth performance, condition factor, feed conversion and age at sexual maturity were found at market size.

C-129

Comparative growth of the Mediterranean mussel (*Mytilus galloprovincialis* Lamarck, 1819) reared in three coastal areas of Sardinia

Simone Serra[1], Giovanna Chessa[1], Sara Saba[2], Marco Trentadue[1], Silvana Manca[1], Fabrizio Chessa[1], Nicola Fois[1], Antonio Pais[2]

[1]*Agris Sardegna, Olmedo, Italy*

[2]*Dipartimento di Scienze Zootecniche, Università di Sassari, Italy*

Corresponding author: pais@uniss.it

Mussel culture is the most important aquacultural activity in Sardinia (Italy). Small specimens (42.5±3.1 mm shell length, 2.3±0.6 g wet meat weight) of *Mytilus galloprovincialis* of the same origin (Taranto) were grown in suspended culture from April to October 2010 in three different Sardinian coastal lagoons: 1) Calich, 2) Porto Pozzo, and 3) Tortolì. Several morphometric variables (i.e., shell length, shell height, wet shell weight, wet meat weight, and wet total weight) were measured monthly in 60 mussels from each of the experimental groups. During the same period, a number of hydrological variables (i.e., temperature, salinity, pH, and dissolved oxygen) were monitored

fortnightly at each lagoon, whereas chlorophyll a and seston content in the water column was determined monthly. A two-way analysis of variance was used to test for differences in mussel shell length and condition index (CI = wet meat weight/wet total weight × 100) between 'sites' and 'sampling periods'. Post-hoc multiple comparisons were performed using the Student-Newman-Keuls test. After six months, mussels grown in the Calich lagoon showed a significantly higher mean shell length (66.2±4.7 mm; $F(2, 1062) = 117.3$, $P<0.001$) than those from Porto Pozzo (63.5±3.2 mm) and Tortolì (61.6±2.7 mm). Similarly, at the end of the trial, mean CI value was significantly higher in *M. galloprovincialis* specimens from the Calich lagoon (60.9±5.3; $F(2, 1062) = 847.5$, $P<0.001$) than in those from Porto Pozzo (51.4±3.9) and Tortolì (49.4±4.4). Significant differences due to 'sampling period' and interaction 'site × sampling period' were also detected. The influence of the abiotic variables on mussel growth is reported and discussed.

C-130

Study of the intestinal microflora of gilthead sea bream (*Sparus aurata* Linnaeus, 1758) reared in off shore floating cages

Rosanna Floris, Silvana Manca, Laura Mura, Nicola Fois

Agris Sardegna, Olmedo, Italy
Corresponding author: rfloris@agrisricerca.it

Fish gut microflora is important for aquacultured species because it reflects the bacterial flora of the rearing environment, the type of diet and plays a role in the health and quality of adult fish. Previous quantitative studies on intestinal bacterial flora of gilthead sea breams reared in floating cages showed low bacterial loads. The aim of this research was to investigate the qualitative composition of the intestinal microbiota of gilthead sea breams reared (Autumn 2008) in off-shore floating cages, located in the Alghero bay along the Sardinian coast, by means of phenotypic tests, ARDRA and sequencing of the 16S rRNA gene. This polyphasic study aimed to identify the dominant heterotrophic bacteria of the gut to evaluate the microbiological quality of fish and bacterial biodiversity to detect a link with the rearing system. The qualitative microbiological analyses highlighted the presence of 19 different ARDRA phylogenetic groups and five dominant bacterial species were identified by sequence analysis: *Pseudomonas fluorescens* (22%), rainbow trout intestinal bacteria (14%), *Myroides profundii* (14%), *Psychrobacter* sp. (11%), *Cryseobacterium* sp. (2%) and other Gram-negative (37%). These microbial species are described as typical of both aquatic environments and fish gut. *Pseudomonas fluorescens* is also described as principal aerobic Gram-negative on food products, whereas rainbow trout intestinal bacteria as a component of the gut of rainbow trout. *Psychrobacter* sp. and *Cryseobacterium* sp., have been commonly isolated from skin, gills, and have proved to be dominant in the gut of Atlantic cod fed bioprocessed soybean meal. Our results indicate the presence of non pathogenic bacteria in the gut of these fish, a good microbiological quality, good rearing system hygienic conditions, a high bacterial biodiversity and a close link between gut microflora and the type of sea bream's diet.

C-131

Optimization of reproduction and larval rearing of red porgy, *Pagrus pagrus* (L.)

Alessandra Roncarati[1], Adele Meluzzi[2], Federico Sirri[2], Luca Stocchi[1], Paolo Melotti[1]

[1]*Scuola di Scienze Mediche Veterinarie, Università di Camerino, Italy*
[2]*Dipartimento di Scienze degli Alimenti, Alma Mater Studiorum, Università di Bologna, Italy*
Corresponding author: alessandra.roncarati@unicam.it

The aim of the trial was to set up a reproduction and larval rearing technique for red porgy (*Pagrus pagrus*), considered one of the most important emerging species for marine aquaculture. A total of 100 (40 females, 60 males) four years old red porgy, weighing 700±300 g, were equally subdivided in 2 indoor tanks (V1, V2) (50 m^3 each) connected to a recirculation system. Water was maintained at 37 ppt of salinity and temperature increased from 14 to 26°C according to a 8 months gonad maturation programme. Photoperiod was 15 h light:7 h dark obtained by means of fluorescent lamps (150 lux at water surface). Fish were fed *ad libitum* fresh mussels, defrost squid and fresh anchovy. Spawning started without hormonal injection at the beginning of April and eggs were collected in baskets and incubated in two 1,000 l circular tanks at the density of 1.5 kg/tank (=1,500,000 eggs) at 15±0.5°C, with a water flow of 0.4 l/min and moderated aeration. Larvae hatched after 3 days of incubation and were transferred in 2-10 m^3 tanks at 19±1°C. Larvae were exposed to a daily photoperiod of 24 h light from day 3 to 17, and 16 h light from day 18 to 60. Light intensity measured at the water surface was 120 lux. Dead larvae were daily removed and counted. Feeding protocol included enriched rotifers from day 3 to day 30 while enriched *Artemia nauplii* were added from day 20. From day 30, inert diets of different size (200-300, 300-500, 500-700 µm) were supplied. Trial lasted 60 days, when the fingerlings were completely weaned: at this time, mortality was calculated. Eggs had a fertilization rate of 90% (V1) and 85% (V2), while the hatching rate was 75% in V1 and 73% in V2, respectively. The development of swim bladder started on day 10 and lasted until day 15. Larval mortality was very low ranging from 2% (day 3) to 0.5% (day 7) and decreasing with the time; total mortality was 18-20%.