Parasites of cage cultured European seabass *Dicentrarchus labrax* and gilthead seabream *Sparus aurata* from Sardinia (western Mediterranean): first results

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European seabass *Dicentrarchus labrax* and gilthead seabream *Sparus aurata* are the most important marine finfish species intensively cultured in the Mediterranean. Many factors influenced the rapid increase in the production of these species in the last two decades. One of the most important factors is the great development and diffusion of sea-cage culture. On the other hand, cages constitute an open system, which allows free exchange between wild and caged organisms, leading to the emergence of characteristic diseases (Woo PTK *et al*, 2002, Diseases and Disorders of Finfish in Cage Culture, CAB International, Oxon, UK). From April 2004 to October 2005 a periodical sampling was carried out on 3 sea cage facilities located in west (W), north (N) and east (E) coast of Sardinia (western Mediterranean). The W and E facilities were offshore (off), while the N one was inshore (in). A total of 1080 *D. labrax* and 1136 *S. aurata* were sampled, distributed in the 3 localities as follows: *D. labrax*, W 359, N 383, E 338; *S. aurata*, W 407, N 398, E 331. In the laboratory, part of the fish (about 30%) was examined for parasites according to standard protocols, the other part was frozen for subsequent parasitological analysis. A total of 13 parasite species were found, the host-parasite list with indication of prevalence, is reported in the Table. All the parasites had been previously recorded in wild and/or cultured *D. labrax* and *S. aurata* from the Mediterranean. Concerning the different typology of cage, the fish of the inshore facility was infected by almost all the parasite species, 7 over 8 in *D. labrax* and 5 over 5 in *S. aurata*, and generally with higher infection levels. In the W and E offshore facilities the number of species was 2 and 6 in *D. labrax* and 2 and 3 in *S. aurata*, respectively. The parasite species common to the three localities were *E. dicentrarchi* and *C. diplodae* in *D. labrax* and *S. chrysophrii* in *S. aurata*. On the whole, about all the parasites were detected some time after the stocking in cage, and for some species a seasonal pattern was observed. Among the apicomplexans, *C. molnari* was the only parasite with higher infection levels in the first rearing period, decreasing progressively and disappearing after some months, as reported by Sitjà-Bobadilla *et al* (2005, Appl Env Microbiol, 71: 131-139), whereas *E. dicentrarchi* was recorded during all the study period, with peaks in the warm seasons. Regarding myxozoans, *Ceratomyxa* spp. was very variable with apparent peaks in the cold seasons, as reported Alvarez-Pellitero & Sitjà-Bobadilla (1989, Proc IV EAFP Conference: 27) and Palenzuela *et al* (1997, Parasitol Res, 83: 539-548). As stated by Sitjà-Bobadilla & Alvarez-Pellitero (1992, Parasitol, 106: 39-45) *S. dicentrarchi* was more frequent during the warm seasons, but did not show a clear increase of the infection levels with age/size. In spring '05, one single specimen of *S. aurata* from the inshore facility was found infected by *Henneguya* sp. Among the monogeneans, both *D. aequans* and *F. echeneis* had a general increase with age/size of host and, as reported by González-Lanza *et al* (1991, Parasitol Res, 77: 307-314), the higher levels of infection were recorded in the cold seasons. On the other hand, *S. chrysophrii* had a general increase in the first months, followed by a decrease in the adult fish, particularly in autumn. Concerning the crustaceans, *L. kroyeri* showed a relation of infection levels with age/size of host, as reported Manera & Dezfuli (2003, DAO, 57: 177-180), while regarding *C. minimus* and *C. oestroides* no clear patterns were seen. Finally, regarding the sanitary aspects, no evident pathological signs caused by parasitic infections were observed. However, some of the parasite species recorded (e.g. *C. molnari, S. chrysophrii, C. oestroides*) has become a serious threat to cage-reared fish in other Mediterranean localities.

Table 1.

Dicentrarchus labrax	W(off)	N(in)	E(off)
Mouth			
Ceratothoa oestroides			2.0%
Gills			
Diplectanum aequans		80.2%	24.2%
Lernanthropus kroyeri		19.9%	
Caligus minimus		5.2%	
Intestine			
Eimeria dicentrarchi	23.2%	11.0%	16.3%
Gall bladder			
Ceratomyxa diplodae	0.8%	26.7%	6.1%
Ceratomyxa labracis		2.9%	6.1%
Internal organs			
Sphaerospora dicentrarchi		49.3%	2.0%
Sparus aurata	W(off)	N(in)	E(off)
Gills			
Henneguya sp.		1.0%	
Furnestinia echeneis		73.0%	55.4%
Sparicotyle chrysophrii	4.2%	24.0%	1.5%
Stomach			
Cryptosporidium molnari		3.0%	22.3%
Gall bladder			
Ceratomyxa sparusaurati	2.1%	12.0%	

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