

Participación de la Dirección de Acuicultura en el congreso de “AQUA 2012”

La Dirección de Acuicultura participó por medio del Lic. Fernando Raibenberg en el Congreso Internacional “AQUA 2012” organizado por la EAS (European Aquaculture Society) y la WAS (World Aquaculture Society) en el Centro de Congresos de la ciudad de Praga, República Checa; del 1 al 5 de Septiembre 2012. El evento de relevancia internacional tiene varios aspectos importantes que incluyeron, el intercambio de las últimas investigaciones en el área de la acuicultura, acceso a la información sobre el intercambio comercial para observación adquisición de equipamiento de vanguardia, alimentos, fármacos, publicaciones y otros productos existentes en el mercado de la acuicultura mundial. Aparte, se tuvo la oportunidad de conectarse con colegas de todo el mundo y especialistas en patologías de organismos acuícolas.

Los tópicos abordados abarcaron todos los tipos de acuicultura en diferentes ambientes, con exposiciones sobre los nuevos avances en sanidad, biotecnología, genética, inmunología, drogas y terapéuticas; aspectos medioambientales y nuevas tecnologías aplicadas, a través de más de 1200 exposiciones orales y posters de profesionales de todo el mundo.

Como es habitual en los congresos WAS la Exposición Comercial es parte esencial e importante, con la presentación de más de 100 stands de productos y servicios de Europa,



The poster for AQUA 2012 features a silhouette of a city skyline at the top. Below the skyline, the text reads "AQUA 2012" in large, stylized letters, followed by "Global Aquaculture SECURING OUR FUTURE" and "Prague, Czech Republic Sep 1-5, 2012". The poster is divided into several sections: a row of four images (a lake with people, a large white fish, a street scene in Prague, and a close-up of fish), a row of three images (a circular structure, a close-up of fish, and a close-up of fish), and a bottom section with logos for sponsors and organizers. The sponsors include BioMar (Gold Sponsor), Altech (Silver Sponsor), Biomiri (Session Sponsor), Novus (WAS Premier Sponsor), MSD (EAS Premium Sponsor), and SINTEF (EAS Premium Sponsor). The organizers are the European Aquaculture Society (EAS) and the World Aquaculture Society, in cooperation with CENAKVA and the Faculty of Fisheries and Protection of Waters at the University of South Bohemia in České Budějovice.

América, y Asia; con impacto global en el éxito comercial futuro de la industria respectiva. “AQUA 2012” conto con la cooperación local de la University of South Bohemia, Faculty of Fisheries and Protection of Waters, y el apoyo del Ministerio de Agricultura de la Republica Checa, además de conocidas empresas sponsors del sector como BioMar, Novus, Alltech, MSD, Sintef, y Biomin.

El Lic. Fernando Raibenberg, consultor de la Dirección de Acuicultura trabaja específicamente en diagnóstico molecular de organismos acuáticos y presentó bajo la modalidad de poster, en la sección temática crustáceos, un trabajo referido al primer estudio de vigilancia activa de enfermedades virales en crustáceos de declaración obligatoria ante OIE. Estas enfermedades fueron estudiadas en poblaciones silvestres de langostino (*Pleoticus muelleri*) en el Golfo San Jorge. (*Primary diagnosis and surveillance of*



notifiable viral diseases of crustaceans in wild red shrimp Pleoticus muelleri in the Gulf of San Jorge, Argentina).

Estas acciones se encuadran dentro del convenio específico del Acuerdo de Cooperación Técnica entre el Ministerio de Agricultura, Ganadería, Pesca y el Servicio Nacional de Sanidad y Calidad Agroalimentaria - SENASA, de la órbita del mismo, para el desarrollo

del Plan Sanitario de Vigilancia de Organismos Acuáticos, coordinado desde la Dirección por la Lic. Marcela Álvarez. La exposición de este estudio iniciado por la Subsecretaria de Pesca y Acuicultura desde la Dirección de Acuicultura, el SENASA, y el INIDEP, registra un primer antecedente de relevancia sanitaria para la especie de “langostino” realizado en la zona pesquera de mayor importancia de nuestro país. La presentación menciona los resultados obtenidos, que demuestran la ausencia de enfermedades virales de crustáceos en las poblaciones estudiadas; permitiendo así acceder y/o ampliar los mercados de destino. La asistencia y participación en esta conferencia permitió asimismo establecer contactos con expertos internacionales, especialistas en temas de sanidad de animales acuáticos, e intercambiar experiencias y resultados respecto de los estudios realizados.



Primary diagnosis and surveillance of notifiable viral diseases of crustaceans in wild red shrimp *Pleoticus muelleri* in the San Jorge Gulf, Argentina

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Abstract

This is the first report to evaluate the health status of native wild Patagonian red shrimp, *Pleoticus muelleri* populations in the San Jorge Gulf, for white spot syndrome virus (WSSV), infectious hypodermal and haematopoietic necrosis virus (IHHNV), infectious mionecrosis virus (IMNV), Taura syndrome virus (TSV) and yellow head virus (YHV). Specimens of *P. muelleri* were collected from five sampling locations throughout the San Jorge Gulf. All the samples were tested by using histopathology methods and NAD (nucleic acid detection) PCR, and RT-PCR techniques. The laboratory analyses from this initial survey 2011 confirmed the absence of five of the viral notifiable diseases in the zone under study. Active surveillance actions with annual sampling continue to be undertaken to detect viral disease incursion.

Introduction

- Emergent serious diseases caused by shrimp viruses WSSV, IHHNV, IMNV, TSV and YHV spread rapidly worldwide.
- The economic impacts of the pandemics caused by these pathogens have been profound in countries in which shrimp farming constitutes a significant industry.
- As a consequence several states have imposed protective sanitary measures restricting access to their markets, of frozen commodities shrimp products from exporting countries.
- The red shrimp *Pleoticus muelleri* (Bate, 1888) represents the most important crustacean fishery in Argentina. Nearly all of the shrimp products are exported to international markets in frozen conditions.
- Frozen commodity shrimp have been implicated as one of the risks for introducing viable viral agents into farmed and native shrimp stocks.
- Increasing world trade in frozen commodities shrimps products has led to concern about the potential to introduce exotic viral diseases of major impact through the movement of these commodities.
- The health status of wild native *Pleoticus muelleri*, populations in the San Jorge Gulf was unknown. Thus Argentina's Under Secretariat of Fisheries and Aquaculture in association with the animal health authorities (Animal Health National Services - SENASA) and the INIDEP (National Institute for Fisheries Research and Development), designed and conducted an initial field survey to study wild native populations of Patagonian red shrimp for evidence of viral diseases of crustaceans.

Materials and Methods

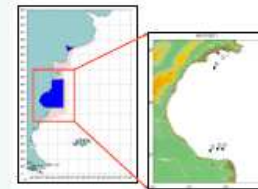
- General processing of samples
- Samples of gills and pleopods tissues were dissected from three individuals and pooled. Total nucleic acid was extracted from the preserved tissues using commercial DNA and RNA isolation kits (Qiagen-Promega). 40 caught animals were used to set up the extraction of total nucleic acids.
- Tissues for histopathology examination were manually sectioned, embedded in paraffin, and stained with hematoxylin and eosin (H&E).



- Laboratory analyses
- Total DNA and RNA extracted from each sample were first screened to verify total nucleic acid quality and amplification efficiency. For DNA using the decapod PCR test with primers sets that amplify shrimp 18S ribosomal DNA, and for RNA with a shrimp B-actin primer pair. Conditions for optimal diagnostics PCRs amplifications were determined.
- Detection of the viral etiological agents involved the use of the OIE-recommended NAD (nucleic acid detection) techniques PCR, and RT-PCR. All the appropriate controls were included; positive controls were obtained from the OIE reference laboratories.

Results

- A total of 373 specimens of *Pleoticus muelleri* from 5 geographically separate sampling locations along the San Jorge Gulf were examined during this study.



- 210 samples representing 70 pools of 3 specimens were tested for the detection of the (WSSV, IHHNV, IMNV, TSV, and YHV) viruses by NAD tests (PCR, RT-PCR). No specific sequences of the responsible viral pathogens were detected at any site of the fishing hauls.
- 652 histological fixed sections including cephalothoraxes and abdomen tissues were examined for the presence of disease. No typical clinical signs or internal anatomopathological lesions compatible with or specific to the viral diseases studied were observed.

Sampling Date	Hauls	Coordinates	Sample Size Shrimp (%)	Sample Size Control (%)	WSSV Status	IHHNV Status	IMNV Status	TSV Status	YHV Status
AD-2011 01/02/2011	22	48°07'0 S 66°28'1 W	42	42	Negative	Negative	Negative	Negative	Negative
AD-2011 03/03/2011	13	48°12'0 S 66°14'0 W	42	42	Negative	Negative	Negative	Negative	Negative
AD-2011 03/03/2011	14	48°12'0 S 66°14'0 W	42	31	Negative	Negative	Negative	Negative	Negative
AD-2011 11/02/2011	19	47°21'0 S 66°19'0 W	42	13	Negative	Negative	Negative	Negative	Negative
AD-2011 12/02/2011	13	48°12'0 S 66°13'0 W	42	27	Negative	Negative	Negative	Negative	Negative
TOTAL			216	155					

Materials and Methods

- Field collections
- Specimens of *Pleoticus muelleri* were obtained from 5 different fishing hauls throughout the San Jorge Gulf, considering 2% prevalence and 95% confidence level (OIE 2009). The sampling campaign was performed on February 2011 onboard of a trawling fishery vessel as part of the INIDEP cooperation.
- 210 whole sub adults and adults of *Pleoticus muelleri* were collected for molecular analysis. Shrimps were fixed with ethanol 96 %.
- Davidson's solution fixative was used to preserve 163 samples taken for routine histopathological study.



Discussion & Conclusions

- This is the first study to evaluate the health status of wild Patagonian red shrimp, populations in the San Jorge Gulf, for evidence of notifiable viral diseases of crustaceans.
- Our preliminary results, determined the absence of clinical disease compatible with white spot disease (WSSV), infectious hypodermal and haematopoietic necrosis (IHHNV), infectious mionecrosis (IMNV), Taura syndrome, (TSV) and yellow head disease (YHV) in wild native *Pleoticus muelleri* at any site of the fishing hauls in the zone mentioned.
- Although no clinical evidence of the presence of the five viral notifiable diseases was observed, further active surveillance actions with annual sampling is being undertaken to be more vigilant on the risk of introduction and spread of crustaceans' viruses that may represent a potential threat to wild populations of this economic important Argentinean commodity shrimp.

Acknowledgements

The authors wish to thank the Aquaculture Direction for the coordination of the first survey, and to the working team from both SENASA and INIDEP. The survey was supported financially by the Fishing Ship-owners and frozen fishery Chamber from Argentina (C.A.Pe.C.A.)