

EPIDEMIOLOGICAL SURVEY FOR BIVALVE MOLLUSCS DISEASES IN FRANCE

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L'importance de limiter les risques d'épizootie pour les mollusques bivalves est particulièrement aiguë : d'abord historiquement, suite à plusieurs épizooties récentes, des espèces de bivalves élevées en France ont parfois été remplacées par des espèces exotiques, et d'autre part, actuellement, l'ostréiculture repose sur l'élevage quasi monospécifique de l'huître creuse. Afin de garantir les échanges et de protéger les élevages, l'IFREMER, à la demande de l'Etat Français a créé en 1992 un réseau d'épidémiosurveillance, le REPAMO. Un deuxième objectif de ce réseau, l'épidémiovigilance des maladies exotiques ou nouvelles pose la difficulté de limiter et d'évaluer les risques de façon rapide et quantitative. Une double approche semble nécessaire : la première fera appel au volontariat et au contrôle au niveau des risques maximums de la filière, la deuxième fera appel à un échantillonnage représentatif, mais dont il faut élaborer la stratégie.

INTRODUCTION

Epidemiology of bivalve marine molluscs in France has to deal with physiological and immunological aspects of these invertebrate animals, with features of culture technics and physiological aspects and with characteristics of marine environment. Medical and sanitary prophylaxis can't be easily used with such constraints. Several epizooties in commercially exploited bivalve species have struck the related industry ; by example Bonamiosis and Marteiosis caused mass mortalities for European Flat Oysters *Ostrea edulis* (RENAULT, 1996), and in many areas this culture was replaced by the Pacific oyster, *Crassostrea gigas*, an exotic species which have been introduced in France in 70's. The French Oyster industry runs now a single species *Crassostrea gigas* with high density sometimes, making the production vulnerable. Disease surveillance and monitoring of animal health was entrusted by the French government to a public organism of applied studies on the ocean, IFREMER. A network, called REPAMO was created in 1992 to protect the marine bivalve molluscs cultures against severe diseases and to facilitate international trade.

OBJECTIVES AND METHODS

Two main objectives are defined for REPAMO, based on a French classification (DUFOUR, 1995) : first the surveillance of identified diseases present in the French territory and the second epidemiovigilance of new or exotic diseases. The first objective is clearly defined by an european directive, CEE 91-67. Two diseases of the list B of IOE (International Office of Epizootic) are concerned, *Bonamia* and *Marteilia* for the European Flat Oyster *ostrea edulis*. French coast is divided into 10 zones and the sampling proceedings, the method of the diagnostics are strictly defined. Diagnostic analysis are realized by three french laboratories, standardized data are registered and available by the three laboratories, which are connected by computer links nationwide. For the second objective the European Directive is less detailed. For the moment, the screening for exotic or new agent prevalence is made by a passive way : laboratory submissions of volunteer breeders who observed alarming mortalities on their stocks.

PERSPECTIVES

For the second objective the first point is to limit the risk of appearance and propagation of any new or exotic disease. The first method, empirical can be useful and rapid if the communication between breeders and IFREMER is well established and if the informations given are enough valid (GRIZEL, 1996).

The network can make active sampling controls on critical points which are particularly risky : the control before importation from foreign and third countries concerned with exotic diseases is already legally done , but one can imagine systematic controls for hatcheries and nurseries, as well as for some zones which are known to be more difficult for the oysters survival and can more easily express a pathogen . Studies can estimate, by the method of risk analysis, the best choices.

The network can make active and statistically-based controls to estimate the agent and disease prevalence, the quantitative effects (mortality and morbidity) of the disease, the health status of the population to make a good estimate of the risk assessment before exportation (ELSTON, 1996). A study is beginning, first to define valid and rapid indicators of health status, then to find environmental and physiological factors which could reduce the variability of these indicators, to detect the sources of bias, to finally propose an optimized sampling strategy.

BIBLIOGRAPHY

- Dufour B., 1996. Les réseaux français d'épidémiosurveillance animale et la protection de la santé publique . *Epidémiol.santé anim.*, 29, 9-17.
- Elston R.A., 1996. International trade of live molluscs : perspective from the Americas. *Rev.sci.tech.Off.int.Epiz* 15(2), 483-490.
- Grizel H., 1996. Quelques exemples d'introduction et de transferts de mollusques. *Rev.sci.tech.Off.int.Epiz* 15(2), 401-408.
- Renault T., 1996. Appearance and spread of diseases among bivalve molluscs in the northern hemisphere in relation to international trade. *Rev. Sci.tech.Off.Int.Epiz* 15(2), 551-561.

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