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Vespa

Molecular evidence for a bacterium of the family Midichloriaceae (order Rickettsiales) in skin and organs of the rainbow trout *Oncorhynchus mykiss* affected by red mark syndrome

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ABSTRACT

Red mark syndrome (RMS) is a chronic skin disease of unknown aetiology affecting farmed rainbow trout Oncorhynchus mykiss in Europe that causes single or multiple bright red skin lesions. Histological analysis showed acute inflammation in the area of the skin suggesting a bacterial infection. No aetiological agent has been unequivocally identified, although the involvement of a single transmissible agent has been suggested. The 16S rDNA of a bacterium belonging to the family Midichloriaceae (Rickettsiales) was found in association with RMS skin lesions.

In this work, we present a novel specific method for absolute quantification of the midichloriacea associated with RMS in O. mykiss, based on a quantitative PCR approach. The qPCR method was tested on healthy skin, on lesions when present and on organ samples (heart, liver, spleen, intestine, and kidney) from ten fish. Our work shows, for the first time, that the midichloriacea is present not only in skin lesions but also in organs of affected fish. Further studies are needed to prove whether this bacterium is actually involved in the pathology.

REFERENCES

Oidtmann B., LaPatra S.E., Verner-Jeffreys D., Pond M., Peeler E.J., Noguera P.A., Bruno D.W., St-Hilaire S., Schubiger C.B., Snekvik K., Crumlish M., Green D.M., Metselaar M., Rodger H., Schmidt-Posthaus H., Galeotti M., and Feist S.W. 2013. Journal of Fish Diseases 36: 931–937;

Schmidt-Posthaus H., Bergmann W., Knusel R., Heistinger H., and Licek E. 2009. Diseases of Aquatic Organisms 88:65–68. Lloyd S.J., LaPatra S.E., Snekvik K.R., Cain K.D., and Call D.R. 2011. Journal of Fish Diseases 34:701–709.

Metselaar M., Thompson K.D., Gratacap R.M.L., Kik M.J.L., LaPatra S.E., Lloyd S.J., Call D.R., Smith P.D., and Adams A. 2010. Journal of Fish Diseases 33:849–858.

Montagna M., Sassera D., Epis S., Bazzocchi C., Vannini C., Lo N., Sacchi L., Fukatsu T., Petroni G., and Bandi C. 2013. Applied and Environmental Microbiology 79:3241–3248.

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