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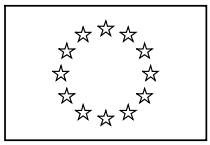

EUROPEAN COMMISSION
HEALTH & CONSUMER PROTECTION DIRECTORATE-GENERAL

Directorate C – Scientific Health Opinions
Unit C3 – Management of scientific committees II

Assessment
of Zoonotic Risk
from Infectious Salmon Anaemia virus

Scientific Committee on Animal Health and Animal Welfare

Adopted 27June 2000

1. Request for opinion

The Scientific Committee on Animal Health and Welfare was asked to consider whether infectious salmon anaemia (ISA) should be regarded as a zoonosis and whether it poses any risks to man.

2. Background

ISA is caused by a virus, which seems to belong to the family of *Orthomyxoviridae* (Krossoy *et al.*, 1999). The disease, characterised by lethargy, haemorrhagic eyes, pale gills and a distended abdomen, has only been observed in Atlantic salmon and in salmon that have been in contact with sea water. Mortality is variable, but figures up to 90% have been recorded. Diagnosis is based upon pathological, haematological and virological examinations. Virus can be detected by immunofluorescent techniques, by RT-PCR or by virus isolation (Devold *et al.*, 2000, OIE, 1997). Only horizontal transmission has been recorded. Preventive measures consist of frequent removal of dead fish, disinfection at entrance and exit of farms and reduction of exposure to biological material (Bruno *et al.*, 1995; Hastings, 1998).

3. Assessment of risks to man

No reports dealing with research on zoonotic aspects of ISA have so far been published.

The following data/factors should be considered in assessing the risk:

- There is no evidence, to date, for a fish virus causing disease in humans.

- ISA virus has a very narrow host range: only one species, Atlantic salmon (*Salmo salar* L.), is known to be susceptible under natural conditions. The virus may survive and replicate in rainbow trout (*Oncorhyncus mykiss*), sea trout (*Salmo trutta*), and Atlantic herring (*Clupea harengus*) (Hastein T., 1997, Nylund *et al.*, 1995, Nylund *et al.*, 1998, Rolland and Nylund, 1998). The virus appears not to be able to replicate in mice, hens' eggs or human cells (Hastings, 1998).

- Though there is evidence that the initial events in ISA virus infection require a low-pH step (pH 4.5) (Trygve *et al.* 2000), the ISA virus is inactivated at lower pH values e.g. pH 3.0 within 30 min (Torgersen, 1993). In the human stomach the pH of gastric secretions is lower than 2.0. If infected fish were eaten by humans, it is likely that the virus would be rapidly inactivated by gastric juices (Hastings, 1998).

- ISA virus does not replicate *in vitro* at temperatures of 25C or above (Falk *et al*. 1997) and is inactivated at 37°C. It seems unlikely therefore that the virus replicates in the human body, and it is likely that it would rapidly be inactivated at human body temperature (Hastings, 1998).

- Genetic studies suggest that there is a relationship between ISA virus and other orthomyxoviruses, such as influenza virus (Trygve *et al.* 2000, Krossoy *et al.* 1999. However, ISA virus differs from influenza viruses in some morphological characteristics and in showing restricted hemagglutination, in different specificity of the receptor-destroying enzyme, in different polypeptide profile, host range, and most important with respect to the present report, in being unable to replicate at temperatures above 25°C. (Falk *et al*., 1997).

- ISA has occurred in Norway for at least 15 years, and also in other countries such as Canada and Scotland . During the late 1980s and early 1990s, when the disease was most prevalent in Norway, this country produced in the order of 150,000 tonnes of salmon each year for human consumption. There is no evidence that consumption of salmon in any of these countries has resulted in adverse effects on human health either to those working in the aquaculture industry or to the general public (Hastings, 1998).

4. Conclusion

The above considerations lead to the conclusion that there is no reason to regard ISA as a zoonosis, and there is no evidence for risk to man.

5. References

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