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RESEARCH NOTES/CASE REPORTS

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Infectious Pancreatic Necrosis Virus: Isolation from Asymptomatic Wild Arctic Char (*Salvelinus alpinus* L.)

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Research involving the intensive culture of Arctic char at Federal facilities in Winnipeg and Gunton, Manitoba necessitated the acquisition of wild Arctic char spawn. In September 1980, Fish Creek, which is a known spawning stream in the Northwest Territories, Canada was selected as a collection site (Fig. 1). Fish were caught using a seine net and after spawn collection the spent fish and reproductive fluid samples were transported on ice to the laboratory and assayed within 24 hr of capture.

Two percent extracts from pooled visceral organ homogenates of kidney, spleen, pyloric caeca-pancreas were inoculated into duplicate washed rainbow trout gonad (RTG-2) and fathead minnow (FHM) cell cultures grown in 24-well cluster dishes. Cytopathic effect (CPE) typical of infectious pancreatic necrosis virus (IPNV) was observed within 3 days in RTG-2 cells, but was not observed in FHM cells. Virus was isolated from two of 10 visceral organ pools, and one of 10 seminal fluid pools, but not from any of the 10 ovarian fluid pools.

The isolate was ether-, glycerol-, and heat-stable and neutralized by polyvalent anti-IPNV serum. Electron microscopic examination of negative contrast stained (phosphotungstate) preparations showed the presence of icosahedral particles measuring 70 nm in diameter with four capsids on each facet, typical of IPNV. The virus isolate was subsequently found to have a different RNA size profile compared to other IPNV isolates, and on this basis it was suggested that it be considered a new IPNV strain (Macdonald et al., 1983, Can. J. Microbiol. 29: 137–141).

Although IPNV has been isolated from domestic Arctic char fry (Ljundberg and Jorgensen, 1973, *In* Symposium on the

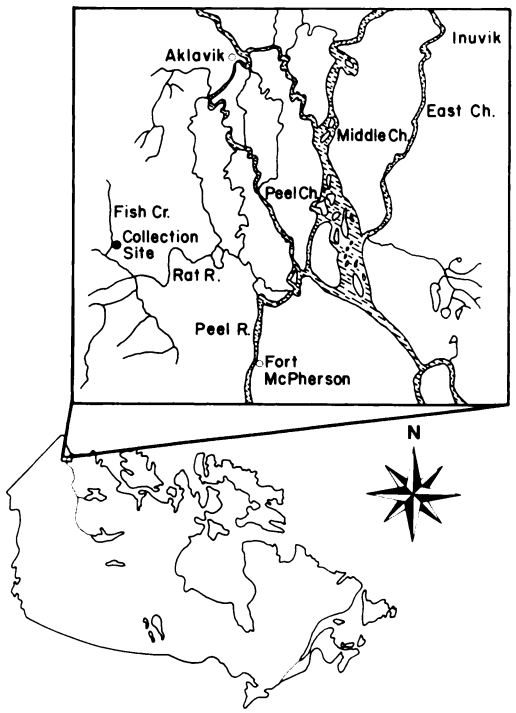


FIGURE 1. Arctic char collection site on Fish Creek, Northwest Territories, Canada.

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Major Communicable Fish Diseases in Europe and Their Control, EIFAC Tech. Pap. 17 Suppl. 2: 67–70), to our knowledge this is the first reported isolation of the virus from wild Arctic char. The possibility that the virus was contracted from infected stocked trout is extremely remote. Salmonids have never been cultured in the Northwest Territories (Moshenko, pers. comm.), and, although both rainbow trout (*Salmo gairdneri* Richardson) and brook trout (*Salvelinus fontinalis* Mitchell) have been stocked intermittently in the Northwest Territories since 1971, the stocking has been limited to a small, closed-system lake situated south of Great Slave Lake (Falk and Low, 1981, Can. Manuscr. Rep. Fish. Aquat. Sci. 1578: 1–20) which is geographically distant (approximately 1,300 km) from the Fish Creek spawning grounds.

The isolation of IPNV from Arctic char is of significance because it extends the North American range of the virus into the Arctic Ocean and the Mackenzie River that drains into it. This finding also illustrates the importance of national fish health protection regulations that require both fish and eggs to be certified specific pathogen-free prior to their movement into another region.

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Simultaneous Transmission of a Piscine Piroplasm and Trypanosome by a Marine Leech

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American plaice, *Hippoglossoides platessoides* (Fabricius), off the coast of Newfoundland harbor infections of piroplasms and trypanosomes (So, 1972, Can. J. Zool. 50: 543–554; Khan et al., 1980, Can. J. Zool. 58: 770–781). High prevalences of natural infections with both parasites were observed in all size groups (12 to 62 cm) of plaice taken 10 km from the shoreline. The marine leech, *Johanssonia arctica* (Johansson, 1898), was reported as the natural vector of *Trypanosoma murmanensis* (Nikitin, 1927) in Atlantic cod, *Gadus morhua* L. (Khan, 1976, Can. J. Zool. 54: 1840–1849). Moreover, evidence was provided that *J. arctica* was the experimental vector of the piroplasm *Haemohormidium beckeri* So, 1972 (Khan, 1980, Can. J. Zool. 58: 1631–1637). Because the same leech has been collected from the body of plaice (Khan et al., 1980, op. cit.), feeds readily on it in the laboratory and transmits *T. murmanensis* (Khan, 1977, Can. J. Zool. 55: 1235–1241), it was hypothesized that transmission of the piroplasm could occur simultaneously.

To test this hypothesis, recently emerged *J. arctica* were permitted to feed on a plaice harboring chronic concurrent infections of *T. murmanensis* and *Haemohormidium terraenovae* So, 1972. The leeches were held subsequently at 0 C as reported previously (Khan, 1976, op. cit.) and following digestion of the blood meal were allowed to refeed (5 leeches/fish) either on immature (16–19 cm) or adult (>25 cm) winter flounder, *Pseudopleuronectes americanus* (Walbaum). Each experimental group consisted of five or six fish. An equal number of flounder, upon which uninfected leeches fed, were held

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