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# Morphological and histological changes of the parenchymatous organs of bluefin tuna, *Thunnus thynnus* (Linnaeus, 1758)

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**SUMMARY** – An account is given of pathology examination made on cage reared Tuna. The three main findings were the presence of chronic granulomatous splenitis, acute cholangiohepatitis and pasteurellosis.

**Key words:** Post-mortem, spleen, liver, pasteurellosis, splenitis, cholangiohepatitis, tuna.

**RESUME** – "Changements morphologiques et histologiques des organes parenchymateux du thon rouge, *Thunnus thynnus* (Linnaeus, 1758)". Un rapport est présenté sur les examens pathologiques de thons élevés en cages. Les trois principales découvertes ont été la présence de splénites granulomateuses chroniques, de cholangiohépatites aigües et de pasteurelloses.

**Mots-clés :** Post-mortem, rate, foie, pasteurellose, splénite, cholangiohépatite, thon.

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## Introduction and methods

During last the two years, tuna on-growing has reached 1000 t of harvested fish. As far as health problems progressed during the cage rearing, in the period of June-December, there were no morbidities or mortalities reported.

In December 2001, during processing and packing of harvested tuna, extracted organs were examined for any abnormalities or tissue changes. Post mortem examination included spleen, liver, stomach, intestine, kidney. Time of sampling and examination was one hour after death. Cause of death was brain pithing with a by sharp object. From the moment of death carcasses were conserved on ice. A total of 25 harvested fish were examined.

After gross morphological examination, tissues were fixed in 10% buffered formaldehyde, processed, and stained with haematoxylin-eosin.

## Results

The following findings were observed.

Chronic granulomatous splenitis – spleen was enlarged with rugged surface. The colour was lighter than other spleens examined. On the sections, multifocal chronic granulomatous changes were evident, encircled with strong cellular infiltrations. Some solitary short plump rods, measuring 2-3  $\mu$  were observed on the edges of the granulomas. The granulomas seemed to be not active and process seemed to be in the stadium of resorption. Similar changes were seen in the case of chronic pasteurellosis in adult sparid brood fish.

Acute cholangiohepatitis – liver on gross examination had punctual green spots. On the sections there was evident bile stagnation, cloudy swelling, and picnosis of the hepatic cells. In some areas, haemorrhages followed the inflammatory changes. Cell infiltration followed tissue injury.

During this examination, organs examined were considered more as indication of the health status, rather than the disease of BFT since there was no evidence of morbidity. Till now, noncaseating

multifocal granulomatous changes in spleen, in Mediterranean finfish are characteristic changes for Pasteurellosis, caused by bacterium *Photobacterium damsella* subsp. *piscicida*.