INTISARI

PENGARUH MINYAK IKAN DARI VISCERA IKAN SARDINE *(Sardinella lemuru)* TERHADAP AKTIVITAS MAKROFAG PERITONEUM IN VITRO

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Latar Belakang: Indonesia merupakan negara yang memiliki potensi hasil perikanan, salah satunya ikan sardine. Jeroan (*viscera*) ikan sardine merupakan salah satu produk sampingan pengolahan sardine. *Viscera* ikan sardine salah satunya dapat diolah menjadi minyak ikan yang kaya akan EPA DHA. Kandungan EPA DHA dalam minyak viscera ikan sardine diketahui dapat meningkatkan imunitas tubuh.

Tujuan: Mengetahui pengaruh pemberian minyak ikan dari *viscera* ikan sarden terhadap aktivitas fagositosis peritoneum mencit *Balb/c in vitro*.

Metode: Eksperimental murni dengan rancangan *post-test only control group*. Mencit *Balb/c* dibius menggunakan eter, kemudian dinekropsi dan dibedah di rongga abdomen. Cairan RPMI disuntikkan ke rongga abdomen untuk memperoleh sel makrofag, kemudian disuspensi hingga konsentrasi 2,5 x 10^5 sel/sumuran dan diinkubasi selama 24 jam. Kelompok penelitian dibagi menjadi 3, yaitu kelompok yang diberi minyak viscera ikan sardine 50 µg/ml (MS), minyak ikan komersial 50 µg/ml (MK), dan kontrol (K) dengan 2 kali pengulangan. Sumuran diinkubasi dan diberi lateks *beads*, kemudian dicuci dengan PBS dan ditetesi cat giemsa. Sebanyak 100 sel makrofag aktif diamati melalui mikroskop, kemudian dihitung kapasitas fagositosis dan indeks fagositosis menggunakan rumus. Data yang diperoleh kemudian diuji dengan *one way ANOVA* menggunakan perangkat lunak SPSS.

Hasil: Minyak viscera ikan sardine mempengaruhi peningkatan kapasitas fagositosis (P=0,04) dan indeks fagositosis (P=0,008) makrofag peritoneum mencit balb/c. Kapasitas Fagositosis makrofag pada kelompok MS 65±15,56; MK 23±2,82; K 30±4,24, dan indeks fagositosis pada kelompok MS 1,89±0,02; MK 1,16±0,16; K 1,16±0,07.

Kesimpulan: Minyak viscera ikan sardine dapat meningkatkan kapasitas fagositosis dan indeks fagositosis makrofag peritoneum mencit Balb/c. Perlu penelitian lanjutan dengan metode *in vivo* dan variasi dosis serta penelitian mengenai pengolahan minyak *viscera* ikan agar dapat dikonsumsi masyarakat umum.

Kata kunci: minyak viscera ikan sardine, imunitas, aktivitas makrofag, EPA, DHA.

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ABSTRACT

EFFECT OF FISH OIL FROM SARDINES VISCERA ON MACROPHAGE PERITONEUM ACTIVITY IN VITRO

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Background: Indonesia is a country that has potential fishery products, one of them is sardine fish. Viscera is a by-product of sardine processing. The viscera of sardines can be processed into many products, one of them is fish oil that rich in EPA and DHA. The content of EPA DHA in sardine viscera oil is known to increase the body's immunity.

Objective: To determine the effect of sardine viscera fish oil on phagocytosis activity of macrophages from Balb/c mice in vitro.

Method: We conducted a true experimental study with post-test only control group. Balb/c mice were anesthetized using ether, then necropsied and dissected in the abdominal cavity. RPMI fluid injected into the abdominal cavity to obtain macrophages cells, then suspended to a concentration of 2.5 x 10^5 cells/well and incubated for 24 hours. The well-plate divided into 3 groups, which were given sardine viscera fish oil 50 µg/ml (MS), commercial fish oil 50 µg/ml (MK), and control group (K) with two repetitions. The wells were incubated and given latex beads, then washed with PBS and stained by giemsa. The number of macrophages cells were counted by observing 100 macrophages under the microscope, then the phagocytic capacity and phagocytosis index were calculated. The data obtained were then tested with one way ANOVA using SPSS software.

Result: Sardine viscera fish oil significantly increased the phagocytic capacity (P=0,04) and phagocytosis index (P=0.008) of macrophages peritoneum from Balb/c mice. Phagocytic capacity in MS group 65±15,56; MK group 23±2,82; K group 30±4,24, and phagocytosis index in MS group 1,89±0,02; MK 1,16±0,16; K 1,16±0,07.

Conclusion: Sardine viscera fish oil significantly increased the phagocytic capacity and phagocytosis index of macrophages peritoneum in vitro. Further research is needed with in vivo methods and variations in dosage as well as research on processing fish viscera oil so that it can be consumed by the general public.

Keywords: sardine viscera fish oil, immunity, macrophage activity, EPA, DHA.

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