

## EVALUASI EFEK IMUNOSTIMULATOR MINUMAN FUNGSIONAL HIDROLISAT KOLAGEN IKAN PADA RESPON PROLIFERASI LIMFOSIT SECARA *IN VITRO*

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### INTISARI

**Latar Belakang :** Dewasa ini, pasar pangan fungsional sedang mengalami pertumbuhan yang pesat karena meningkatnya kesadaran dan gaya hidup sehat masyarakat, termasuk pasar produk minuman kolagen. Kolagen khususnya dalam bentuk hidrolisat kolagen sebagai senyawa bioaktif diketahui memiliki potensi aktivitas biologis berupa efek immunostimulator yang bermanfaat bagi peningkatan sistem imun.

**Tujuan Penelitian :** Mengevaluasi efek immunostimulator produk minuman fungsional hidrolisat kolagen ikan yang diformulasikan dengan prebiotik inulin dan vitamin C menggunakan parameter respon proliferasi limfosit yang diukur menggunakan indeks stimulasi limfosit dan %kapasitas proliferasi limfosit.

**Metode Penelitian :** Jenis penelitian ini merupakan eksperimental murni dengan desain *post test-only control group design*. Uji respon proliferasi limfosit menggunakan model *in vitro*. Perlakuan yang diberikan terhadap sel yaitu seri konsentrasi sampel minuman fungsional hidrolisat kolagen ikan meliputi 6,25 µg/mL; 12,5 µg/mL; 25 µg/mL; 50 µg/mL; 100 µg/mL dan mitogen concanavalin A meliputi perlakuan tanpa penambahan mitogen concanavalin A dan dengan penambahan mitogen concanavalin A.

**Hasil :** Hasil analisis statistik menunjukkan bahwa konsentrasi dari minuman fungsional hidrolisat kolagen yang lebih tinggi tidak memiliki efek yang lebih besar terhadap indeks stimulasi limfosit dan %kapasitas proliferasi limfosit ( $p>0,05$ ). Hasil yang sama ditunjukkan pada perlakuan mitogen concanavalin A bahwa penambahan mitogen concanavalin A tidak memiliki %kapasitas proliferasi limfosit yang lebih besar dibandingkan dengan kelompok tanpa penambahan mitogen concanavalin A ( $p>0,05$ ).

**Kesimpulan :** Minuman fungsional hidrolisat kolagen ikan tidak memberikan efek terhadap respon proliferasi limfosit yang diukur menggunakan indeks stimulasi limfosit dan %kapasitas proliferasi limfosit. Penambahan mitogen concanavalin A juga tidak memberikan efek pada %kapasitas proliferasi limfosit.

**KATA KUNCI :** pangan fungsional, minuman kolagen, proliferasi limfosit, mencit BALB/c, *in vitro*

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## ***Evaluation of Immunostimulatory Effect of Fish Collagen Hydrolysate Functional Drink on Lymphocyte Proliferation Response In Vitro***

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### **ABSTRACT**

**Background :** Currently, the functional food market is rapidly growing due to increasing health consciousness and lifestyle of people, including market for collagen beverage products. Collagen, especially in the form of collagen hydrolysate as a bioactive compound, is known to have potential biological activity as immunostimulator that is beneficial for enhancing immune system.

**Objective :** To evaluate immunostimulatory effect of fish collagen hydrolysate functional drink product that formulated with inulin as prebiotic and vitamin C on lymphocyte proliferation response which was measured using lymphocyte stimulation index and %lymphocyte proliferation capacity.

**Method :** The study design was true experimental with post test-only control group design. The lymphocyte proliferation response assay was used in vitro model. The treatments given to the cells included various concentrations of fish collagen hydrolysate functional drink (6.25 g/mL, 12.5 g/mL, 25 g/mL, 50 g/mL, 100 g/mL) also without and with the addition of concanavalin A.

**Result :** Statistical analysis showed the higher concentration of collagen hydrolysate functional drink did not have a greater effect on the lymphocyte stimulation index and %lymphocyte proliferation capacity ( $p>0.05$ ). The same result was shown in the treatment of concanavalin A mitogen that the addition of concanavalin A mitogen did not have a greater %lymphocyte proliferation capacity than the group without the addition of concanavalin A mitogen ( $p>0.05$ ).

**Conclusion :** Fish collagen hydrolysate functional drink had no effect on the lymphocyte proliferation response which was measured using lymphocyte stimulation index and %lymphocyte proliferation capacity. The addition of the mitogen concanavalin A also had no effect on the %lymphocyte proliferative capacity.

**KEY WORDS :** functional food, collagen drink, lymphocyte proliferation, BALB/c, in vitro

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