PENGARUH EKSTRAK DAUN KERSEN (*Muntingia calabura* Linnaeus, 1753) TERHADAP SISTEM IMUN, ORGAN RESPIRASI DAN POPULASI RESEPTOR ACE2 COVID-19 PADA IKAN ZEBRA (*Danio rerio* Hamilton, 1822)

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INTISARI

Saat ini masyarakat dunia menghadapi fenomena pandemi Covid-19 sejak Desember 2019 dan telah memakan banyak korban. Berbagai cara telah digunakan untuk mencegah dan merawat pasien yang terkena infeksi virus ini, terutama dalam perawatan medis. Selain upaya medis, penggalian potensi bahan alam sebagai agen pengendali Covid-19 sudah banyak dilakukan. Tujuan penelitian ini adalah untuk mengetahui potensi *Muntingia calabura* sebagai agen pengendali Covid-19, dengan mempelajari efek metabolit sekunder daun *Muntingia calabura* terhadap ikan zebra (*Danio rerio*). Penelitian difokuskan pada pemberian ekstrak daun *Muntingia calabura* dan pengaruhnya terhadap organ pernafasan, sistem imun dan populasi reseptor ACE2 pada ikan zebra (*Danio rerio*) melalui pengamatan mikroskopis dan makroskopik. Ekstrak daun *Muntingia calabura* dilakukan dengan metode soxhlet, yang kemudian digunakan sebagai suplemen pakan ikan zebra. Ikan zebra dibagi menjadi 5 kelompok, kontrol dan mereka yang diobati dengan ekstrak daun 0,5 mg/L, 0,25 mg/L, 0,1 mg/L, dan BSA. Data dianalisis dengan One-Way ANOVA, LSD Post Hoc Test dan Duncan (DMRT), untuk mengetahui perbedaan antara masing-masing kelompok perlakuan. Hasil penelitian menunjukkan bahwa konsentrasi ekstrak daun *Muntingia calabura* yang efektif terhadap organ pernafasan, sistem imun dan populasi reseptor ACE2 pada ikan zebra ialah sebesar 0,1 mg/L.

Kata kunci: Daun kersen, ikan zebra, respirasi, imun, ACE2

EFFECT OF KERSEN LEAVES EXTRACT (*Muntingia calabura* Linnaeus, 1753) ON IMMUNE SYSTEM, RESPIRATORY ORGANS AND COVID-19 ACE2 RECEPTOR POPULATION ON ZEBRA FISH (*Danio rerio* Hamilton, 1822)

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ABSTRACT

Currently the world community is facing the Covid-19 pandemic phenomenon since December 2019 and has claimed many victims. Various methods have been used to prevent and treat patients affected by this viral infection, especially in medical treatment. In addition to medical efforts, there have been many explorations of the potential of natural materials as agents of Covid-19 control. The purpose of this study was to determine the potential of *Muntingia calabura* as a controlling agent for Covid-19, by studying the effects of secondary metabolites of *Muntingia calabura* leaves on zebrafish (*Danio rerio*). The study was focused on administering *Muntingia calabura* leaf extract and its effects on the respiratory organs, immune system and ACE2 receptor population in zebrafish (Danio rerio) through microscopic and macroscopic observations. *Muntingia calabura* leaf extract was carried out using the Soxhlet method, which was then used as a zebrafish feed supplement. Zebrafish were divided into 5 groups, control and those treated with leaf extract 0.5 mg/L, 0.25 mg/L, 0.1 mg/L, and BSA. Data were analyzed by One-Way ANOVA, LSD Post Hoc Test and Duncan (DMRT), to determine the differences between each treatment group. The results showed that the concentration of Muntingia calabura leaf extract which was effective against the respiratory organs, immune system and ACE2 receptor population in zebrafish was 0.1 mg/L.

Key words: *Muntingia calabura*, zebrafish, respiratory, immune, ACE2