

**TOXICITY TESTS OF MANGROVE LEAF EXTRACT (*Avicennia marina*) ON
CULTURE CELL HUMAN GINGIVAL FIBROBLAST
AS MOUTHWASH**

ABSTRACT

Background: The mangrove plant (*Avicennia marina*) is easily found in coastal vegetation in Indonesia, especially Surabaya, believed to be utilized in traditional medicine. Previous research revealed that the extract of mangrove leaves with a certain concentration has antibacterial and antifungal properties. To be used as an alternative material in the field of dentistry is safe to use. Until now, there has been no research on the toxicity of mangrove extracts with concentrations of 2.5%, 5% 10% and 20% against human gingival fibroblasts cell cultures. **Objective:** To find the minimum toxicity concentration of mangrove leaf extract which can be used as a mouthwash ingredient. **Method:** The type of research was experimental laboratory with the design of The Post Test Only Control Group Design. Treatment with the extract of mangrove leaves (*Avicennia marina*) with concentrations of 2.5%, 5%, 10% and 20% against cultures of human gingival fibroblas cells. **Results:** The percentage of fibroblast cell survival at concentrations of 2.5%, 5%, 10%, 20% were found live cell percentage by 39%, 37%, 33%, 29.9%. Toxicity results were obtained by assay technique after 24 hours. The optical absorbance value of density represents viability of living cells and readings using ELISA reader. **Conclusion:** Leaf mangrove flower extract (*Avicennia marina*) with concentrations of 2.5%, 5%, 10% and 20% showed toxic effects on cultured human gingival fibroblast cells and can not be used as mouthwash ingredients.

Keywords: Toxicity, *Avicennia marina*, human gingival fibroblasts

**UJI TOKSISITAS EKSTRAK DAUN MANGROVE API-API (*Avicennia marina*)
TERHADAP KULTUR SEL FIBROBLAS GINGIVA MANUSIA
SEBAGAI OBAT KUMUR**

ABSTRAK

Latar Belakang: Tanaman mangrove api-api (*Avicennia marina*) merupakan tumbuhan pantai yang mudah ditemui di Indonesia terutama Surabaya, dipercaya dapat dimanfaatkan dalam pengobatan tradisional. Penelitian sebelumnya mengungkapkan bahwa ekstrak daun mangrove api-api dengan konsentrasi tertentu memiliki sifat antibakteri dan antifungi. Untuk dapat digunakan sebagai bahan alternatif dibidang kedokteran gigi yang aman digunakan. Hingga saat ini, belum ada penelitian mengenai toksisitas dari ekstrak daun mangrove api-api dengan konsentrasi 2,5%, 5% 10% dan 20% terhadap kultur sel fibroblas gingiva manusia. **Tujuan:** Untuk mencari konsentrasi toksisitas minimum ekstrak daun mangrove api-api yang dapat digunakan sebagai bahan obat kumur. **Metode:** Jenis penelitian adalah eksperimental laboratoris dengan rancangan penelitian *The Post Test Only Control Group Design*. Perlakuan dengan pemberian ekstrak daun mangrove api-api (*Avicennia marina*) dengan konsentrasi 2,5%, 5%, 10% dan 20% terhadap kultur sel fibroblas gingiva manusia. **Hasil:** Persentase kehidupan sel fibroblas pada konsentrasi 2,5%, 5%, 10%, 20% berturut-turut didapatkan presentase sel hidup sebesar 39%, 37%, 33%, 29,9%. Hasil toksisitas didapat dengan teknik *MTT assay* setelah 24 jam. Nilai absorbansi optikal densitas menggambarkan viabilitas sel yang hidup dan dilakukan pembacaan menggunakan *ELISA reader*. **Simpulan:** Ekstrak daun mangrove api-api (*Avicennia marina*) dengan konsentrasi 2,5%, 5%, 10% dan 20% menunjukkan efek toksik terhadap kultur sel fibroblas gingiva manusia dan tidak dapat digunakan sebagai bahan obat kumur.

Kata Kunci : Toksisitas, *Avicennia marina*, fibroblas gingiva manusia