ABSTRACT

Viability Test of α - Mangostin on Squamous Cell Carcinoma

***Background**: Oral squamous cell carcinoma (OSCC) represents approximately 96% of all oral cancers. Epithelial mesenchymal trantition (EMT) is a factor that contributes to the poor prognosis associated with OSCC. Current clinical care of OSCC mainly includes surgery, radiotherapy, and chemotherapy but after various treatments the five-year survival remains less than 50% due to aggressive invasion and resistance to treatment. Thus, the development of diagnostic and therapeutic strategies will provide significant benefits for the development of a successful therapy. α-Mangostin is one of the xanthones which has anticancer effect and also can inhibit the viability of OSCC cells. However, the optimal dose for α-mangostin against human OSCC to inhibit cell viability is uncertain. **Objective :** To determine the viability of α-Mangostin against HOC313 squamous cell carcinoma culture cells in vitro. **Material and Methods**: This study is an experimental laboratory study on HOC313 culture cells given α-Mangostin with a concentration of 1.25 µM, 2.5 µM, 3.75 µM, 5, µM 6.25 µM, and 7.5 µM for 24 hours. **Results:** The results obtained were the percentage of cell life of HOC313 at a concentration of 1.25 µM, 2.5 µM, 3.75 µM, 5 µM, 6.25 µM, and 7 µM α-Mangostin respectively, the percentage of living cells by 147.55%; 153.17%; 170.93%; 158.23%; 176.75%; and 171.27%. The results of the cytotoxicity test were obtained by using the MTT assay technique after 24 hours. The optical absorbance value of density describes the viability of living cells and read using an ELISA reader. **Conclusion**: α - mangostin in a concentration of 1.25 µM, 2.5 µM, 3.75 µM, 5 µM, 6.25 µM, and 7 µM did not reduce the viability of HOC-313 cells.*

***Keywords:** Oral squamous cell carcinoma, epithelial mesenchymal transition, α-Mangostin*

ABSTRAK

Uji Viabilitas α-Mangostin Terhadap Karsinoma Sel Skuamosa

Latar Belakang: Karsinoma sel skuamous rongga mulut (OSCC) mewakili sekitar 96% dari semua kanker mulut. Epithelial mesenchymal trantition (EMT) merupakan faktor yang berkontribusi terhadap prognosis buruk yang terkait dengan karsinoma sel squamous rongga mulut. Perawatan klinis pada OSCC saat ini terutama meliputi bedah, radioterapi, dan kemoterapi namun setelah berbagai perawatan kelangsungan hidup lima tahun tetap kurang dari 50% karena invasi yang agresif dan resistensi terhadap perawatan. Dengan demikian, pengembangan strategi diagnostik dan terapeutik akan memberikan manfaat yang signifikan bagi pengembangan terapi yang berhasil. α-Mangostin merupakan salah satu xanthones yang memiliki sifat antikanker serta dapat menghambat viabilitas sel OSCC. Namun, dosis optimal untuk *α*-mangostin terhadap OSCC manusia untuk menghambat viabilitas sel masih tidak pasti. **Tujuan:** Mengetahui viabilitas α-Mangostin terhadap sel kultur karsinoma sel skuamousa HOC313 secara *in vitro*. **Metode Penelitian:** Jenis penelitian adalah eksperimental laboratoris dengan rancangan penelitian *The Post Test Only Control Group Design*. Perlakuan pada kultur sel HOC313 yang diberi α-Mangostin dengan konsentrasi 1.25 µM, 2.5 µM, 3.75 µM, 5, µM 6.25 µM, dan 7.5 µM selama 24 jam. **Hasil Penelitian:** Didapatkan hasil dengan persentase kehidupan sel HOC313 pada konsentrasi 1,25 µM, 2,5 µM, 3,75 µM, 5 µM, 6,25 µM, dan 7 µM α-Mangostin berturut-turut persentase sel hidup sebesar 147,55%; 153,17%; 170,93%; 158,23%; 176,75%; dan 171,27%. Hasil uji sitotoksisitas didapat dengan teknik MTT assay setelah 24 jam. Nilai absorbansi Optikal densitas menggambarkan viabilitas sel yang hidup dan dilakukan pembacaan menggunakan ELISA reader. **Kesimpulan:** *α*-mangostin dalam konsentrasi 1,25 µM, 2,5 µM, 3,75 µM, 5 µM, 6,25 µM, dan 7 µM tidak mampu menurunkan viabilitas sel HOC313.

Kata Kunci: karsinoma sel skuamousa rongga mulut, *epithelial mesenchymal trantition*, α-Mangostin