ABSTRAK

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Program Studi : Kedokteran

Judul Skripsi : Efek Ekstrak Daun Teh Hijau Terhadap Proliferasi dan Siklus Pada Sel Kanker HSC-3

Latar Belakang: Karsinoma sel skuamosa rongga mulut, termasuk kanker lidah, masih memiliki luaran klinis yang kurang baik dan terapi konvensional dapat menimbulkan efek samping. Teh hijau (Camellia sinensis) mengandung polifenol (terutama EGCG) yang berpotensi sebagai agen antikanker. Penelitian ini menilai efek ekstrak daun teh hijau terhadap proliferasi dan siklus sel

Metode: Penelitian eksperimental in vitro menggunakan sel HSC-3. Kelompok proliferasi: DMEM (kontrol), cisplatin 15 μM (kontrol positif), dan ekstrak teh hijau 160, 320, 640, 960 μg/mL; pengukuran dengan CCK 8. Siklus sel dianalisis menggunakan flow cytometry (PI) pada cisplatin, DMEM, dan ekstrak 40, 80, 100, 160 μg/mL. Analisis statistik menggunakan One-Way ANOVA dan uji lanjut Tukey ($p<0,05$).

Hasil: Rata-rata proliferasi DMEM 31.432 dan cisplatin 24.604. Ekstrak teh hijau menunjukkan perubahan proliferasi: 160 μg/mL 37.384; 320 μg/mL 30.346; 640 μg/mL 6.124; 960 μg/mL 608. ANOVA proliferasi signifikan ($F=501,241$; $p=0,000$). Distribusi siklus sel menunjukkan proporsi G0/G1 meningkat pada 160 μg/mL (58,5%) dibanding 40 μg/mL (31,8%), namun ANOVA siklus sel tidak signifikan ($F=1,624$; $p=0,228$).

Simpulan: Ekstrak daun teh hijau menurunkan proliferasi sel HSC-3 secara signifikan, namun tidak menunjukkan perbedaan signifikan pada distribusi siklus sel.

Kata kunci: Camellia sinensis, teh hijau, HSC-3, proliferasi, siklus sel.

ABSTRACT

Name : *Daris Agil Widjaya*
Study Program : *Medicine*
Title : *Effect of Green Tea Leaf Extract on Proliferation and Cycle in HSC-3 Cancer Cells*

Introduction: *Oral squamous cell carcinoma, including tongue cancer, remains challenging to treat, and conventional therapies may cause substantial adverse effects. Green tea (Camellia sinensis) contains polyphenols, particularly epigallocatechin gallate (EGCG), with reported anticancer activity. This study evaluated the effects of green tea leaf extract on HSC-3 tongue cancer cell proliferation and cell cycle.*

Methods: *An in vitro experimental study was conducted using HSC-3 cells. Proliferation was assessed by CCK 8 in groups: DMEM (negative control), cisplatin 15 µM (positive control), and green tea extract at 160, 320, 640, and 960 µg/mL. Cell cycle distribution was analyzed by flow cytometry (propidium iodide) in DMEM, cisplatin, and extract at 40, 80, 100, and 160 µg/mL. Data were analyzed using One-Way ANOVA and Tukey post hoc ($p<0.05$).*

Results: *Mean proliferation was 31,432 (DMEM) and 24,604 (cisplatin). Green tea extract showed: 37,384 (160 µg/mL), 30,346 (320 µg/mL), 6,124 (640 µg/mL), and 608 (960 µg/mL). Proliferation differed significantly among groups ($F=501.241$; $p=0.000$). G0/G1 increased to 58.5% at 160 µg/mL (vs 31.8% at 40 µg/mL), but overall cell-cycle differences were not significant ($F=1.624$; $p=0.228$).*

Conclusion: *Green tea leaf extract significantly inhibits HSC-3 cell proliferation but does not significantly alter overall cell-cycle distribution.*

Keywords: *Camellia sinensis, green tea extract, HSC-3, proliferation, cell cycle.*