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EFFECT OF POTATO (Solanum tuberosum) PEEL EXTRACTS ON THE VIABILITY OF HUMAN GINGIVAL FIBROBLAST
(In vitro study)
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Universitas Gadjah Mada, 2015 | Diunduh dari http://etd.repository.ugm.ac.id/

ABSTRACT

Potato (*Solanum tuberosum* L.) is a member of *Solanaceae* family. Potato peel is often regarded as waste although it contains phenolic compounds, glycoalkaloids and flavonoid. The aim of this study was to evaluate the effect of different concentration of potato peel extracts on the viability of Human Gingival Fibroblasts (HGF) cell.

Potato peel extracts were prepared by maceration technique. The 96-well tissue culture microtitre plates were seeded with HGF cell at a density of 2×10^4 cells/100µL and incubated for 24 hours. Next, 100 µL of potato peel extracts at the concentration of 62.5 µg/mL, 125 µg/mL, 250µg/mL, 500 µg/mL, and 1000 µg/mL and a medium (control) were dispensed into the well of cell culture. Each concentration was evaluated for its viability with 3 replicate samples. The results of the MTT test were analyzed statistically using one-way ANOVA and LSD test.

The result showed the mean and standard deviation of viable HGF cells after incubated with potato peel extract at the concentration 62.5 µg/mL, 125 µg/mL, 250µg/mL, 500 µg/mL, and 1000 µg/mL were 98.67% ± 3.56, 88.34% ± 0.79, 55.42% ± 3.96, 28.33% ± 0.60 and 26.26% ± 0.53. The percentage of cell death of HGF cells increases with the increase in the concentration of the potato peel extract. ANOVA test result showed a significant influence of various concentration of potato peel extract on the viability of HGF cells ($p<0.05$). Result of LSD test showed a significant difference within all treatment groups ($p<0.05$).

This research concluded that various potato peel extracts concentration can affect the viability of HGF cell line and the concentration 125 µg/mL was considered safe to be applied clinically.

Key words: Potato (*Solanum tuberosum* L.) peel extracts, MTT Assay, HGF cells, viability

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INTISARI

Kentang (*Solanum tuberosum* L.) merupakan tanaman famili *Solanaceae*. Kulit kentang sering dianggap sebagai limbah padahal kulit kentang mengandung senyawa fenolik, glycoalkaloids dan flavonoid. Tujuan penelitian ini adalah untuk mengevaluasi pengaruh variasi konsentrasi ekstrak kulit kentang pada viabilitas sel *Human Gingiva Fibroblast* (HGF).

Pembuatan ekstrak kulit kentang dengan menggunakan teknik maserasi. Sel HGF dengan kepadatan 2×10^4 sel/100µL dikultur dalam sumuran mikroplate 96 sumuran dan diinkubasi selama 24 jam. Kemudian sebanyak 100 µL ekstrak kulit kentang dengan variasi konsentrasi 62,5 µg/mL, 125 µg/mL, 250 µg / mL, 500 µg/mL, dan 1000 µg/mL serta larutan media sebagai kontrol dimasukkan ke dalam setiap sumuran. Setiap kelompok perlakuan dilakukan replikasi 3 sampel ulangan. Hasil uji MTT dianalisis secara statistik menggunakan ANAVA satu arah dan uji LSD.

Hasil penelitian menunjukkan rerata dan simpang baku viabilitas sel HGF setelah diinkubasi dengan variasi konsentrasi ekstrak kulit kentang pada konsentrasi 62,5 µg/mL, 125 µg/mL, 250 µg / mL, 500 µg/mL, dan 1000 µg/mL adalah 98,67% ± 3,56, 88,34% ± 0,79, 55,42% ± 3,96, 28,33% ± 0,60 dan 26,26% ± 0,53. Persentase kematian sel HGF meningkat dengan peningkatan konsentrasi ekstrak kulit kentang. Hasil uji ANAVA menunjukkan pengaruh yang bermakna pada variasi konsentrasi ekstrak kulit kentang terhadap viabilitas sel HGF ($p < 0,05$). Hasil uji LSD menunjukkan perbedaan yang bermakna dalam semua kelompok perlakuan ($p < 0,05$).

Kesimpulannya variasi konsentrasi ekstrak kulit kentang dapat mempengaruhi viabilitas sel HGF dan konsentrasi 125 µg/mL dianggap aman untuk diterapkan secara klinis.

Kata kunci: Ekstrak kulit kentang (*Solanum tuberosum* L.), uji MTT, sel HGF, viabilitas