

INTISARI

Lapisan epitel mukosa oral merupakan lapisan yang berperan sebagai pertahanan pertama dari invasi benda asing atau mikroorganisme dalam rongga mulut. Kondisi disintegrasi lapisan epitel membentuk suatu luka dan mengaktifkan respon jaringan tubuh untuk memulai proses penyembuhan luka. *Stem Cell from Human Exfoliated Deciduous Teeth* (SHED) merupakan jenis *stem cell* yang berasal jaringan pulpa gigi sulung hasil ekstraksi. SHED memiliki kandungan sitokin yang berperan dalam proses penyembuhan luka. Penelitian bertujuan untuk mengetahui pengaruh nanoemulgel *spent medium* SHED dalam mempercepat re-epitelisasi luka mukosa bukal tikus wistar (*Rattus norvegicus*).

Penelitian dilakukan dengan membuat model luka mukosa bukal kanan menggunakan *punch biopsy* berdiameter 3 mm pada 24 tikus wistar. Penelitian dibagi menjadi kelompok kontrol Aloclair Plus® dan perlakuan nanoemulgel *spent medium* SHED yang mendapatkan aplikasi bahan uji pada hari ke-0, 1, 2, dan 3 pascaperluasan dan pengambilan sampel yang dilakukan pada hari ke-3, 5, 7, dan 14 pascaperluasan. Data pengukuran diameter luka dan ketebalan epitel dianalisis dengan uji statistik dengan $p < 0,05$.

Hasil penelitian rerata diameter luka kedua kelompok mengalami penurunan, sedangkan ketebalan epitel mengalami kenaikan pada tiap waktu pengamatan. Nanoemulgel *spent medium* SHED memiliki kemampuan dalam mempercepat penyembuhan luka dengan hasil analisis data yang signifikan antara kelompok perlakuan dengan kelompok kontrol pada hari ke-5 dan ke-7. Proses tersebut disebabkan aktivitas penyembuhan luka oleh berbagai sitokin yang terdapat dalam nanoemulgel *spent medium* SHED. Kesimpulan penelitian ini adalah nanoemulgel *spent medium* SHED mempercepat re-epitelisasi luka mukosa bukal pada tikus wistar (*Rattus norvegicus*) setelah hari ke-5 pascaperluasan.

Kata Kunci: Mukosa bukal, Luka, Re-epitelisasi, Nanoemulgel, *Spent medium*, *Stem Cell from Human Exfoliated Deciduous Teeth* (SHED)

ABSTRACT

The oral mucosal epithelial layer serves as the first line of defense against foreign objects and microorganisms in the oral cavity. When this epithelial layer disintegrates, it results in a wound that triggers the body's tissue response to initiate the healing process.. Stem Cells from Human Exfoliated Deciduous Teeth (SHED) are a type of stem cell derived from the pulp of extracted primary teeth. SHED contains cytokines that play a crucial role in wound healing. This study aims to evaluate the effect of nanoemulgel spent medium SHED in accelerating the re-epithelialization of buccal mucosal wounds in Wistar rats (*Rattus norvegicus*).

A wound model was created by performing a 3 mm punch biopsy on the right buccal mucosa of 24 Wistar rats. The subjects were divided into two groups: a control group treated with Aloclair Plus® and a treatment group receiving nanoemulgel spent medium SHED. The test materials were applied on days 0, 1, 2, and 3 post-injury, while sample collection was conducted on days 3, 5, 7, and 14. Wound diameter and epithelial thickness were measured and analyzed statistically with a significance level of $p < 0.05$.

The results showed that the average wound diameter decreased in both groups, while epithelial thickness increased over time. Nanoemulgel spent medium SHED demonstrated a significant ability to accelerate wound healing, with statistical differences observed between the treatment and control groups on days 5 and 7. This effect is attributed to the wound-healing activity mediated by various cytokines present in the nanoemulgel spent medium SHED. In conclusion, nanoemulgel spent medium SHED accelerates the re-epithelialization of buccal mucosal wounds in Wistar rats (*Rattus norvegicus*), particularly after day 5 post-injury.

Keywords: Buccal mucosa, Wound, Re-epithelialization, Nanoemulgel, Spent medium, Stem Cells from Human Exfoliated Deciduous Teeth (SHED)