

INTISARI

PENGARUH LENDIR *Achatina fulica*
TERHADAP EKSPRESI GEN bFGF DAN VEGF
DALAM PROSES PENYEMBUHAN LUKA EKSISI KULIT
TIKUS DIABETIK YANG DIINDUKSI STREPTOZOTOCIN

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Latar Belakang : Di tahun 2018, 10,9% penduduk Indonesia diatas usia 15 tahun mengidap diabetes melitus dan komplikasinya. Penderita diabetes melitus beresiko mengalami ulkus, dan lendir *A. fulica* diduga dapat membantu proses penyembuhan luka.

Tujuan Penelitian: mengetahui pengaruh lendir *A. fulica* terhadap ekspresi gen bFGF dan VEGF pada proses penyembuhan luka eksisi kulit tikus diabetik yang diinduksi streptozotocin.

Metodologi Penelitian: Penelitian ini adalah penelitian eksperimental murni, *post-test only control group design*. Subyek penelitian adalah 15 ekor tikus putih galur Wistar (*Rattus norvegicus*), yang dibagi menjadi 3 kelompok, yaitu kelompok kontrol positif, kontrol negatif dan perlakuan. Pada kelompok kontrol negatif luka tidak diberi obat, kontrol positif diberi gel ekstrak plasenta 10% + neomisin sulfat 0.5% dan perlakuan diberi gel ekstrak lendir *A. fulica* kadar 10%. Pengumpulan data dimulai dengan mengekstraksi RNA sampel, kemudian setelah melalui proses RT-PCR dan elektroforesis, didapatkan data berupa densitas pita/ekspresi gen bFGF dan VEGF.

Hasil Penelitian : Ekspresi bFGF pada kelompok perlakuan lebih tinggi dibandingkan dengan kelompok kontrol positif dan kontrol negatif, namun hanya perbandingan terhadap kontrol negatif yang bermakna secara statistik ($p < 0,05$). Ekspresi VEGF pada kelompok perlakuan lebih tinggi dibandingkan dengan kontrol positif maupun kontrol negatif yang tidak bermakna secara statistik ($p > 0,05$).

Kesimpulan: Pemberian lendir *A. fulica* memacu ekspresi bFGF yang lebih tinggi pada proses penyembuhan luka eksisi kulit tikus diabetik yang diinduksi streptozotocin, dibandingkan dengan kelompok yang tidak diberi obat.

Kata Kunci : *Achatina fulica*, bFGF, diabetes melitus, ulkus diabetik, penyembuhan luka, VEGF.

ABSTRACT

EFFECT OF ACHATINA FULICA'S SLIME ON THE EXPRESSION OF bFGF AND VEGF IN EXCISIONAL WOUND HEALING PROCESS OF STREPTOZOTOCIN INDUCED DIABETIC RAT

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Background: In 2018, 10.9% of Indonesia's population over the age of 15 had diabetes mellitus and its complications. People with diabetes mellitus are at risk for ulcers, and *A. fulica*'s is promising in helping the wound healing process.

Objective: To determine the effect of *A. fulica*'s mucus on the expression of bFGF and VEGF genes in the excisional wound healing process of streptozotocin induced diabetic rat skin.

Methodology: This research is an experimental research, post-test only control group design. The subjects of the study were 15 Wistar (*Rattus norvegicus*) strain white rats, which were divided into 3 groups, namely the positive control group, negative control and treatment. In the negative control group the wound was not given the drug, positive control was given 10% placenta extract gel + 0.5% neomycin sulfate and the treatment group was given 10% *A. fulica*'s mucus extract. Data collection was started by extracting RNA samples, then after going through the RT-PCR process and electrophoresis, data were obtained in the form of band density/bFGF and VEGF gene expression.

Results: The expression of bFGF in the treatment group was higher than the positive control group and negative control, but only the comparison with negative controls was statistically significant ($p < 0.05$). VEGF expression in the treatment group was higher than the positive control and negative control which was not statistically significant ($p > 0.05$).

Conclusions: Topical application of *A. fulica*'s mucus stimulates higher bFGF expression in the excisional wound healing process of streptozotocin induced diabetic rat skin.

Keywords: *Achatina fulica*, bFGF, diabetes mellitus, diabetic ulcer, wound healing, VEGF