ABSTRACT

POTENTIAL OF ANADARA GRANOSA NANOPARTICLES TO IMPROVE THE EXPRESSION OF THE FIBROBLAST GROWTH FACTOR-2 (FGF-2) IN CHRONIC WOUND IN HYPERGLICEMIA CONDITIONS

ABSTRACT

Background: *Hyperglycemia can cause negative effects in the oral cavity, such as inhibiting the healing process of wounds in the oral cavity by reducing the expression and distribution of growth factors, one of which is fibroblast growth factor-2 (FGF-2) which functions in the angiogenesis process. The disruption of the wound healing phase due to various factors such as hyperglycemia can lead to chronic wounds which, if not treated quickly, can lead to further infection. Oral wound treatment is usually with an antiseptic or triamcinolone acetonide, but antiseptics are less effective when used in hyperglycemic conditions, whereas triamcinolone acetonide has anti-angiogenic effects so it is not suitable for use in hyperglycemic conditions. Anadara granosa shell nanoparticles can induce the formation of growth factors such as FGF-2 and increase the angiogenesis process.* ***Purpose:*** *To determine the potential of giving Anadara granosa shell nanoparticles to increase FGF-2 in chronic inflammatory wounds with hyperglycemia conditions.* ***Methods****: This paper is a type of literature review or literature review, which is a systematic, clear, comprehensive literature study, by identifying, analyzing, evaluating through the collection of existing data. The literature is obtained from literature sources such as Pubmed, Science Direct, Google Scholar, ProQuest, and similar literature sources. The literature review of this paper uses the technique of finding similarities from several libraries with the same keywords and then concludes.* ***Result:*** *Results obtained through analysis of literature review methods accessed through journal databases in the form of PubMed, Google scholar, and manually search with google search engine. The results were 4 journals that match the inclusion and exclusion criteria.* ***Conclusion:*** *Anadara granosa shell nanoparticles have the potential to increase the expression of fibroblast growth factor-2 (FGF-2) in chronic inflammatory wounds with hyperglycemia conditions.*

Keywords: *Anadara granosa shell nanoparticles, fibroblast growth factor-2, hyperglycemia, chronic inflammatory wounds, wound healing.*

ABSTRAK

POTENSI NANOPARTIKEL CANGKANG *ANADARA GRANOSA* TERHADAP PENINGKATAN EKSPRESI *FIBROBLAST GROWTH FACTOR-2* (FGF-2) PADA LUKA RADANG KRONIS KONDISI HIPERGLIKEMIA

ABSTRAK

Latar Belakang: Hiperglikemia dapat menyebabkan efek negatif pada rongga mulut seperti menghambat proses penyembuhan luka di rongga mulut dengan menurunkan ekspresi dan distribusi *growth factor* yang salah satunya adalah *fibroblast growth factor-2* (FGF-2) yang berfungsi dalam proses angiogenesis. Gangguan fase pernyembuhan luka karena berbagai faktor seperti hiperglikemia dapat menyebabkan terjadinya luka kronis yang jika tidak cepat diobati dapat mengakibatkan infeksi lanjut**.** Pengobatan luka oral biasanya dengan antiseptik atau *triamcinolone* acetonide, namun antiseptik kurang efektif apabila digunakan dalam kondisi hiperglikemia sedangkan *triamcinolone acetonide* memiliki efek anti-angiogenik sehingga tidak cocok digunakan dalam kondisi hiperglikemia. Nanopartikel cangkang *Anadara granosa* dapat menginduksi pembentukan *growth factor* seperti FGF-2 serta meningkatkan proses angiogenesis. **Tujuan:** Mengetahui potensi pemberian nanopartikel cangkang *Anadara granosa* untuk meningkatkan FGF-2 pada luka radang kronis kondisi hiperglikemia**. Metode:** Karya tulis ini merupakan jenis *literature review* atau kajian pustaka, yaitu studi literatur yang bersifat sitematik, jelas, menyeluruh, dengan mengidentifikasi, menganalisis, mengevaluasi melalui pengumpulan data-data yang sudah ada. Literatur tersebut didapatkan dari sumber kepustakaan seperti *Pubmed, Science Direct, Google Scholar*, *ProQuest*, dan sumber kepustakaan sejenis. Kajian pustaka dari karya tulis ini menggunakan teknik mencari kesamaan dari beberapa kepustakaan dengan kata kunci yang sama kemudian menyimpulkannya**. Hasil:** Hasil didapatkan melalui analisis metode *literature review* yang diakses memalui *database* jurnal berupa *PubMed*, *Google* scholar, dan secara *manual search* dengan *google search engine*. Didapatkan hasil berupa 4 jurnal yang sesuai dengan kriteria inklusi dan eksklusi**. Simpulan:** Nanopartikel cangkang *Anadara granosa* berpotensi meningkatkan ekspresi fibroblast growth factor-2 (FGF-2) pada luka radang kronis kondisi hiperglikemia**.**

Kata Kunci: Nanopartikel cangkang *Anadara granosa, fibroblast growth factor-*, hiperglikemia, luka radang kronis, penyembuhan luka.