

INTISARI

AFRA JELITA PERMATA INTAN

PERBANDINGAN JUMLAH KOLONI BAKTERI PADA BENANG *Poly Glycolic Acid* (PGA) DAN BENANG PGA-GETAH BATANG PISANG PASCA INSISI FLAP TIKUS WISTAR (*Rattus novergicus*)

Tindakan pembedahan di bidang medis melibatkan proses insisi yang mengakibatkan adanya perlukaan. Penyembuhan luka dapat dicapai melalui penutupan luka seperti menggunakan benang bedah, salah satunya yaitu benang *poly glycolic acid* (PGA). Pada beberapa kasus proses penyembuhan luka dapat mengalami masalah seperti terkontaminasinya luka oleh bakteri. Bahan alam yang memiliki aktivitas antibakteri dan dapat digunakan di bidang medis yaitu getah batang pisang. Getah batang pisang digunakan sebagai campuran benang PGA. Benang PGA-getah batang pisang dibuat dengan mencampurkan *polyvinyl alcohol*, asam sitrat, larutan *glycolic acid*, getah batang pisang dan dilakukan proses pemintalan, kemudian dilakukan uji tarik, kelarutan dan FTIR serta pengamatan jumlah koloni bakteri pada hari ke 3, 5 dan 7 pengambilan benang bedah pasca insisi. Penelitian dilakukan berdasarkan eksperimental laboratoris dengan jumlah tiga kelompok, kelompok perlakuan I PGA-getah batang pisang, kelompok perlakuan II PGA, kelompok kontrol yang ketiganya terbagi menjadi 3 kelompok kecil yaitu kelompok hari ke 3, 5 dan 7. Kekuatan tarik benang PGA-getah batang pisang yaitu 8 N dan benang larut sempurna dalam 12 hari. Pengujian FTIR menunjukkan adanya gugus fungsi karbonil, alkana, hidroksil. Jumlah koloni bakteri dianalisis menggunakan uji *two way ANOVA* dan *post hoc LSD* menunjukkan adanya perbedaan bermakna antara jumlah bakteri pada kelompok PGA-getah batang pisang dengan kelompok benang PGA dan kontrol ($p < 0,05$). Simpulan dari penelitian ini yaitu jumlah bakteri yang paling sedikit terdapat pada benang PGA-getah batang pisang yaitu $4,9692 \times 10^4$ CFU/ml dan jumlah koloni bakteri paling sedikit yaitu pada pengamatan hari ke 7 pasca insisi sebesar $2,5958 \times 10^4$ CFU/ml dengan masing-masing hari pengambilan benang terjadi penurunan yang signifikan.

Kata kunci : *Penyembuhan luka, benang bedah, PGA, getah batang pisang, koloni bakteri*

Kepustakaan: 59 (1966-2016)

ABSTRACT

AFRA JELITA PERMATA INTAN

COMPARISON OF BACTERIAL COLONIZATION IN *Poly Glycolic Acid* (PGA) SURGICAL SUTURE AND PGA-*Musa paradisiaca* stem sap AFTER FLAP INCISION TIKUS WISTAR (*Rattus novergicus*)

Incision in medical surgery is one thing that cause an injury. Wound healing process can be reached by wound closure with surgical sutures such as *poly glycolic acid* (PGA) suture. In some cases of wound healing there are a lot of problems, for example bacterial contamination that cause infection. One of nature materials that has antibacterial activity and can be used in medical is banana stem sap. Banana stem sap can be combined with PGA. PGA that is combined with banana stem sap is made by mixing polyvinyl alcohol, citric acid, glycolic acid, banana stem sap and spinning process, then the material is tested for tensile strength, solubility, FTIR and bacteria colonization observation on 3rd, 5th and 7th days after incision. Research conducted based on laboratory experimental with three treatment groups, those are: group I is PGA-banana stem sap, group II is PGA - only, group III is control and all of them are divided into three small groups, 3rd, 5th and 7th days. Tensile strength of PGA-banana stem sap suture is 8 N and it soluble in 12 days. FTIR shows that the suture has functional groups of carbonyl, alkanes and hydroxyl. Bacterial colonization analyzed by two way ANOVA and post hoc LSD that shows there is differences between PGA-banana stem sap group with PGA and control group significantly ($p < 0,05$). The conclusion is the lowest bacterial colony is PGA-banana stem sap suture which has $4,9692 \times 10^4$ CFU/ml. PGA suture has $7,2917 \times 10^4$ CFU/ml, control group has $7,7192 \times 10^4$ CFU/ml and the lowest bacterial colony is on 7th days group after incision which has $2,5958 \times 10^4$ CFU/ml. and there is a significant differences between the 3rd group and the 5th group which shows the decreasing result of bacterial colonization.

Keywords: *Wound healing, surgical sutures, PGA, banana stem sap, bacterial colonization*

Literature: 59 (1966-2016)