

ALOE VERA :
IT'S SOLUBILITY REGION AND EFFECT ON WOUND HEALING

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By

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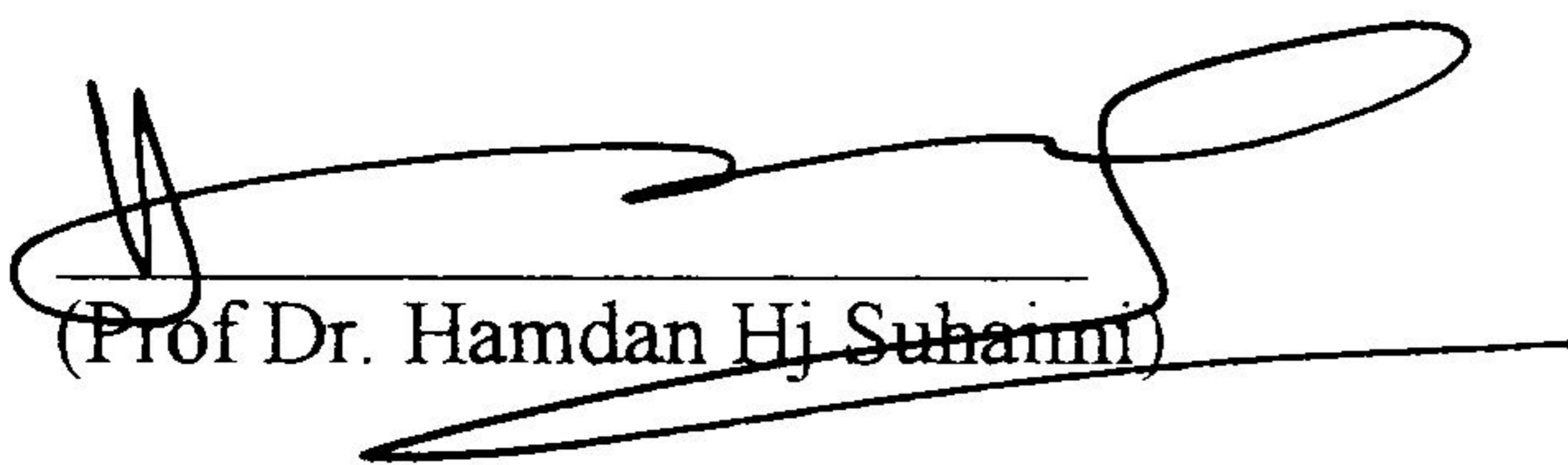
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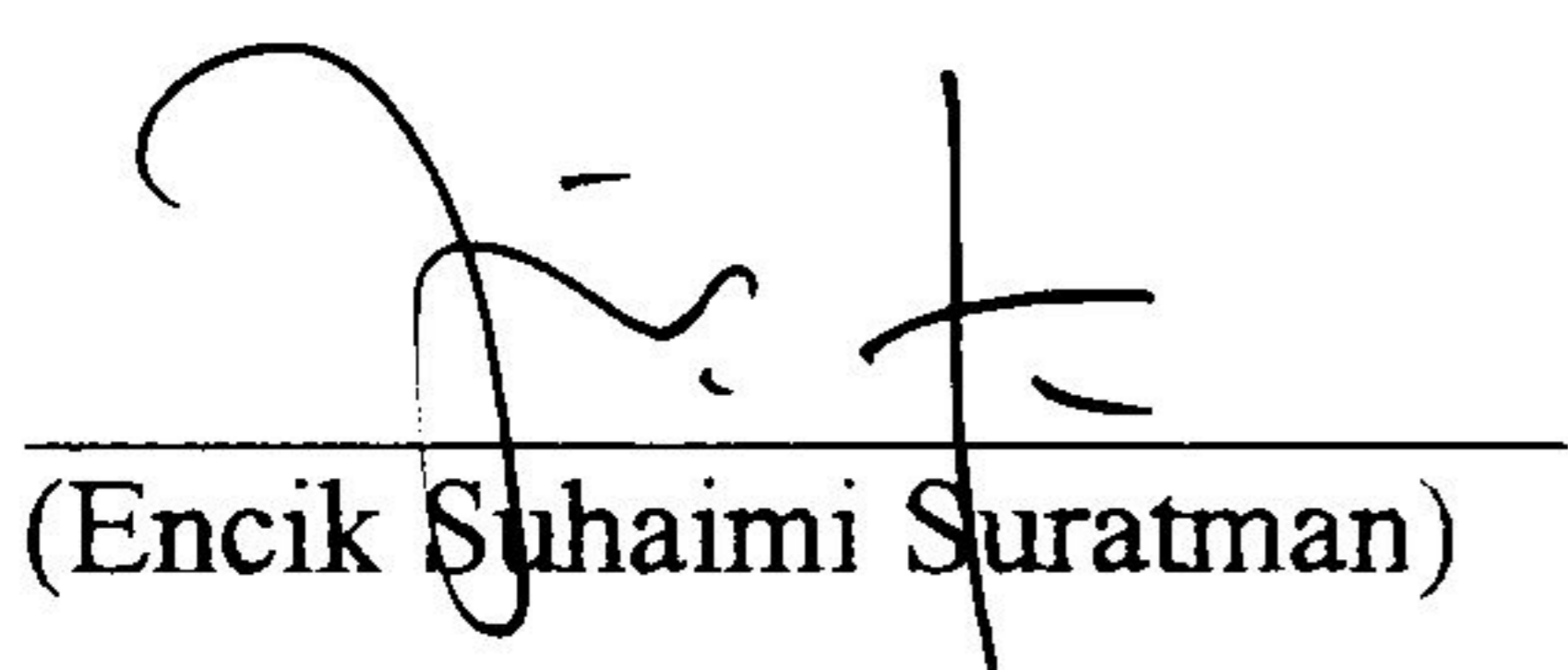
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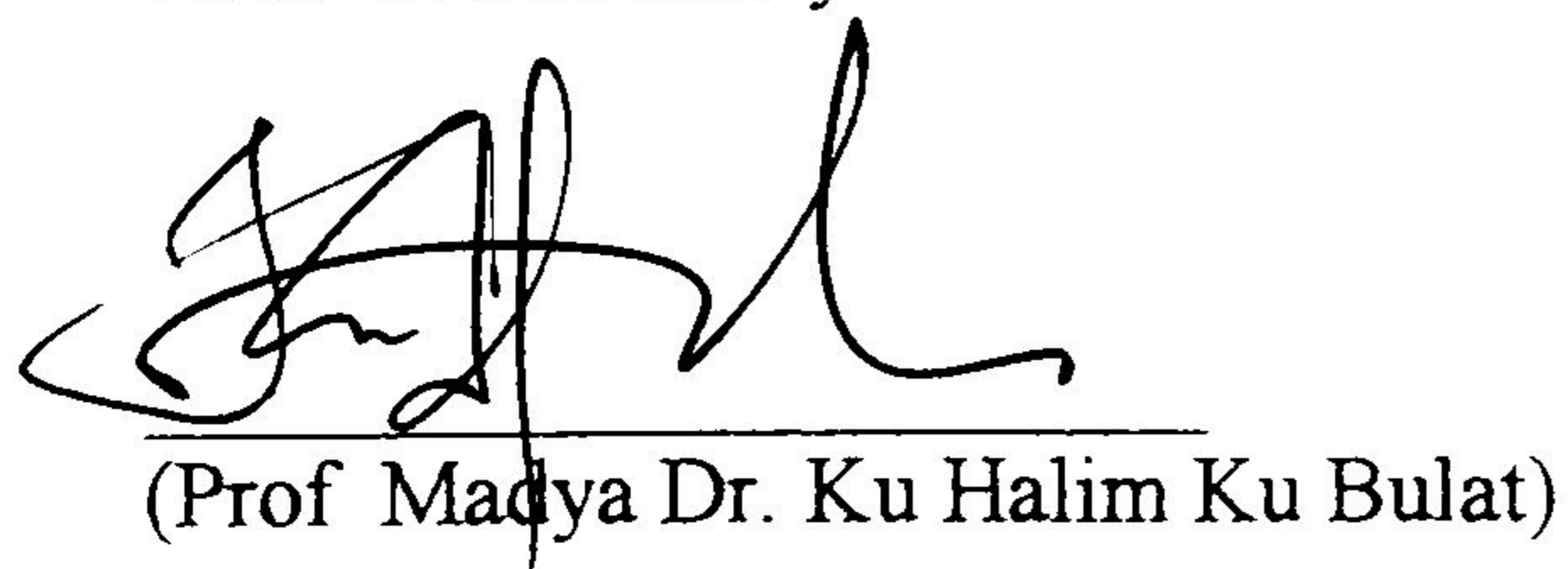
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“ The fruits of one’s labour is always sweet.”

ABSTRACT

The focus of this research is to investigate the component of Aloe vera, its solubility and effect on wound healing.

The results from the Reconstructed Ion Chromatogram (RIC) of the Aloe vera extraction with hexane showed that only the hydrocarbon component was detected. The hydrocarbon component was identified from the analyses of the RIC. They are ethanol, decane, dodecane, tridecane and tetradecane.

From the phase behaviour studies, the results showed that the water, Aloe vera gel and TEA are completely solubilized forming one phase isotropic region. However when the ratio of Aloe vera and alcohol are taken, the solubility regions were mainly two phase, due to the destability effect of alcohol.

Evaluation of Fresh Aloe vera plant gel and Burnol plus (antiseptic) as wound healing promoter on skin incision was done in mice. Nine clinically healthy mice were divided into three groups which comprise two treatment groups and one control group. Wound in Group 1 was applied with Aloe vera gel twice daily for seven consecutive days whereas Group 2 was applied with Burnol plus cream for the same period of time. Group 3 remain as untreated group.

Parameters evaluated were healing wound histological changes. A 2.0 cm long linear insion wound was created at the dorsal. The treatment were applied topically on to wounds twice a day until seven day and the control group received no treatment. Fresh Aloe vera plant gel group showed more rapid healing and promote wound healing when compared with Burnol plus and Control group.

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ABSTRAK

Fokus utama kajian ini adalah untuk mengkaji komponen kimia yang terdapat di dalam Aloe vera, keterlarutan dan keberkesannya ke atas penyembuhan luka.

Keputusan daripada graf RIC (Reconstructed Ion Chromatogram) Aloe vera yang diekstrak dengan heksana menunjukkan bahawa hanya komponen hidrokarbon sahaja yang hadir. Komponen hidrokarbon yang dikenalpasti daripada analisis RIC ialah etanol, dekana, dodekana, tridekana dan tetradekana.

Daripada kajian mengenai gambarajah fasa, keputusan menunjukkan bahawa air, Aloe vera gel dan TEA adalah larut dengan sempurna dalam membentuk satu fasa isotropik. Namun apabila nisbah Aloe vera dan alkohol diambil, kebanyakan fasa kelarutannya adalah dua fasa yang disebabkan oleh kesan ketidakstabilan alkohol.

Penilaian ke atas gel Aloe vera dan Burnol plus (krim antiseptik) sebagai agen penyembuhan luka telah dilakukan ke atas tikus putih. Sembilan ekor tikus putih yang sihat secara klinikal dibahagikan kepada 3 kumpulan yang terdiri daripada dua kumpulan rawatan dan satu kumpulan kawalan. Kumpulan 1 disapukan gel Aloe vera pada garisan luka sebanyak dua kali sehari selama 7 hari. Kumpulan 2 disapukan krim Burnol plus untuk jangkamasa yang sama sementara Kumpulan 3 tidak diberi sebarang rawatan.

Parameter yang dikaji adalah histologi tisu luka. Satu luka linear sepanjang 2.0 cm telah dibuat di bahagian dorsal. Rawatan diberi secara topikal sebanyak dua kali sehari dalam jangkamasa tujuh hari dan kumpulan kawalan tidak diberi rawatan. Kumpulan rawatan Aloe vera telah menunjukkan kadar pemulihan dan merangsang penyembuhan luka yang lebih cepat berbanding Burnol plus dan kumpulan kawalan.

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