

ABSTRAK

MAHARANI, DIAN, 2022, PENGARUH VARIASI PROPILLEN GLIKOL DAN GLISERIN SEBAGAI PENETRATION ENHANCER GEL BENZOYL PEROXIDE 2,5% DAN NIACINAMIDE 5% TERHADAP PENYEMBUHAN INFEKSI BAKTERI *Staphylococcus epidermidis*, SKRIPSI, PROGRAM STUDI S1 FARMASI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA.

Benzoyl peroxide dan niacinamide merupakan senyawa sintesis yang memiliki kemampuan dalam penyembuhan infeksi bakteri dan jerawat. *Penetration enhancer* merupakan zat yang mampu meningkatkan laju difusi bahan aktif. Penelitian ini menggunakan bahan aktif benzoyl peroxide dan niacinamide yang diformulasikan dengan variasi konsentrasi propilen glikol : gliserin. Formula pertama ditambahkan propilen glikol 5% dan gliserin 15%; formula 2 propilen glikol 10% dan gliserin 10%; dan formula 3 propilen glikol 15% dan gliserin 5%. Tujuan dari penelitian ini yaitu mengetahui mutu fisik dan stabilitas gel serta mengetahui efektivitas gel terhadap penyembuhan infeksi pada kelinci *New Zealand White* jantan yang disuntikan suspensi bakteri *Staphylococcus epidermidis*

Pengujian efektivitas gel berdasarkan kecepatan penyembuhan infeksi dan penurunan skor eritema. Hasil evaluasi gel dan efektivitas penyembuhan infeksi dianalisis secara statistik menggunakan SPSS data yang terdistribusi normal dan homogen dengan nilai $p > 0,05$ dianalisis menggunakan *One way Anova* dan data dengan nilai $p < 0,05$ dianalisis menggunakan uji *Kruskal Wallis* dan uji lanjutan *Mann Whitney U* untuk melihat perbedaan antar formula.

Hasil penelitian menunjukkan penambahan zat *penetration enhancer* dapat mempengaruhi proses penyembuhan infeksi pada setiap formula. Formula pertama dengan penambahan propilen glikol dan gliserin (5% : 15%) merupakan formula terbaik dalam pengujian mutu fisik dan efektivitas penyembuhan infeksi pada penurunan skor diameter eritema.

Kata kunci: benzoyl peroxide, niacinamide, *penetration enhancer*

ABSTRACT

DIAN MAHARANI, 2022, *THE INFLUENCE OF PROPYLENE GLYCOL AND GLYCERIN VARIATIONS AS A PENETRATION ENHANCER OF BENZOYL PEROXIDE GEL 2.5% AND NIACINAMIDE 5% ON THE HEALING OF Staphylococcus epidermidis BACTERIAL INFECTION*, THESIS, S1 PHARMACY STUDY PROGRAM, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA

Benzoyl peroxide and niacinamide were synthesis compounds that can cure bacterial infections and acne. Penetration enhancers are substances that can increase the diffusion rate of active ingredients. This study used the active ingredients benzoyl peroxide, and niacinamide formulated with variations in the concentration of propylene glycol: glycerin. The first formula added propylene glycol 5% and glycerin 15%; formula two propylene glycol 10% and glycerin 10%; and formula three propylene glycol 15% and glycerin 5%. The purpose of this study was to determine the physical quality and detection of the gel and to determine the effectiveness of the infection gel in male New Zealand White rabbits injected with Staphylococcus epidermidis bacterial suspension.

Testing the gel's effectiveness results was based on the speed of infection healing and the subduction of erythema scores. The results of the evaluation of the gel and the effectiveness of healing infections were statistically analyzed using SPSS. Data that were normally distributed and homogeneous with a p value > 0.05 were analyzed using One-way Anova and data with a p value < 0.05 were analyzed using the Kruskal Wallis test and Mann Whitney's U follow-up test to see the difference between the formulas.

The results showed that the addition of penetration enhancer substances could affect the infection healing process in each formula. The 1st formula with the addition of propylene glycol and glycerin (5% : 15%) is the best formula in testing the physical quality and effectiveness of infection healing in reducing the erythema subduction score.

Keywords: benzoyl peroxide, niacinamide, penetration enhancer, propylene