

ABSTRAK

Temu putih (*Curcuma zedoaria*) setelah diteliti mengandung antioksidan. Penelitian bertujuan untuk menganalisis pengaruh natrium alginat dan propilen glikol terhadap sifat fisik gel dan perbedaan nilai IC_{50} temu putih saat ekstrak dan sediaan gel. Ekstrak etanol temu putih menggunakan metode maserasi. Rancangan formula gel dengan metode *simplex lattice design* membuat 5 run formula perbandingan konsentrasi sediaan gel natrium alginate (A) dan propilen glikol(B) yaitu: F1(3% A : 8% B), F2(2% A ; 9% B), F3(2,5% A ; 8,5% B), F4(1% A ; 10% B), F5(1,5% A ; 9,5% B). Kelima run dilakukan uji fisik untuk mencari formula optimal dengan *design expert versi 13* dan dibandingkan dengan statistik dengan cara respon observatif dari uji statistik *one sample t-test*. Penentuan aktivitas antioksidan dengan metode DPPH. Hasil penelitian ini ada peningkatan konsentrasi natrium alginat dapat meningkatkan viskositas dan daya lekat, sedangkan peningkatan konsentrasi propilen glikol dapat meningkatkan nilai daya sebar dan pH. Hasil optimasi gel dapat perbandingan nilai natrium alginat dan propilen glikol yaitu : 2,98% : 8%. Ekstrak etanol temu putih menunjukkan aktivitas antioksidan kuat dengan nilai IC_{50} 50,169 ppm dan gel optimal ekstrak temu putih tergolong kuat dengan nilai IC_{50} 67,675 ppm.

KATA KUNCI : Optimasi , Natrium Alginat, Propilen Glikol, Simplex Lattice Design, Antioksidan.

ABSTRAK

White Intersection (*Curcuma zedoaria*) has been investigated to contain antioxidants. The aim of this study was to analyze the effect of sodium alginate and propylene glycol on the physical properties of the gel and the differences in IC50 values of turmeric when extracted and prepared in gel. The ethanol extract of turmeric uses the maceration method. The design of the gel formula using the simplex lattice design method made 5 runs of formulas for comparison of the concentration of sodium alginate (A) and propylene glycol (B) gel preparations, namely: F1(3% A : 8% B), F2(2% A ; 9% B), F3(2.5% A ; 8.5% B), F4(1% A ; 10% B), F5(1.5% A ; 9.5% B). The five runs were subjected to physical tests to find the optimal formula with design expert version 13 and compared with statistics by means of an objective response from the one sample t-test statistic. Determination of antioxidant activity using the DPPH method. The results of this study showed that an increase in the concentration of sodium alginate could increase the viscosity and adhesion, while an increase in the concentration of propylene glycol could increase the spreadability and pH values. The results of gel optimization can compare the values of sodium alginate and propylene glycol, namely: 2.98%: 8%. The ethanol extract of white turmeric showed strong antioxidant activity with an IC50 value of 50.169 ppm and the optimal gel of white turmeric extract was classified as strong with an IC50 value of 67,675 ppm.

KEYWORDS : Optimization, Sodium Alginate, Propylene Glycol, Simplex Lattice Design, Antioxidant.