FORMULASI DAN EVALUASI FISIK *HYDROGEL PATCH* PHYTOSOLVE® 4021 BERBASIS NA-ALGINAT MENGGUNAKAN *DESIGN EXPERT* DENGAN METODE *SIMPLEX LATTICE DESIGN* (SLD)

Dina Ayu Fitri
Program Studi Farmasi

INTISARI

Latar Belakang: Phytosolve® 4021 merupakan sistem pelarutan dengan koenzim Q10 berdasarkan fosfolipid yang berperan sebagai antioksidan dalam sediaan kosmetik.
Tujuan: Untuk mengembangkan formulasi sediaan *hydrogel patch* phytosolve® 4021 sebagai antioksidan berbasis natrium alginat dan mendapatkan sediaan *hydrogel patch* dengan evaluasi fisik yang baik.
Metode: Pembuatan formulasi *hydrogel patch* phytosolve® 4021 berbasis natrium alginat diawali desain optimasi, pembuatan basis, pembuatan *hydrogel patch*, pengujian fisik, penentuan formula optimum, selanjutnya dilakukan pembuatan dan pengujian evaluasi fisik berupa organoleptis, pH, *loss on drying, folding endurance*, ketebalan, verifikasi formula optimum *hydrogel patch* dan aktivitas antioksidan dengan DPPH.
Hasil: Berdasarkan *design expert* versi 9.0 formula optimum yang direkomendasikan yaitu natrium alginat 6%, gliserin 12%. Hasil uji organoleptis kuning transparan, bau khas, halus, licin, agak lengket; pH 4,43; ketebalan 0,53 mm; *folding endurance* 207 kali; dan *loss on drying* 23,58%. Hasil pengujian aktivitas antioksidan phytosolve 4021 dengan IC50 20982,409 µg/mL dan sampel *hydrogel patch* dengan IC50 7702 µg/ml memiliki aktivitas antioksidan sangat lemah.
Kesimpulan: *Design expert* versi 9.0 dapat digunakan untuk penentuan formula optimum *hydrogel patch* phytosolve® 4021 berbasis natrium alginat dengan hasil evaluasi fisik baik dan aktivitas antioksidan lemah.

Kata Kunci: Phytosolve, *Hydrogel Patch*, Na-Alginat, SLD, Antioksidan.

FORMULATION AND PHYSICAL EVALUATION OF HYDROGEL PATCH PHYTOSOLVE® 4021 BASED ON NA-ALGINATE USING DESIGN EXPERT WITH SIMPLEX LATTICE DESIGN (SLD) METHOD

Dina Ayu Fitri
Departement of Pharmacy

ABSTRACT

Background: Phytosolve® 4021 is a coenzyme Q10 based on phospholipids that act as antioxidants in cosmetic preparation.
Objective: To develop a formulation for hydrogel patch phytosolve® 4021 as sodium alginate-based antioxidant and obtain a hydrogel patch with a good physical evaluation.
Method: The creation of the phytosolve® 4021 based on sodium alginate hydrogel formulation begins with optimization design, base creation, patch hydrogel creation, physical testing, optimum formula determination, and physical evaluation of organoleptic, pH, loss on drying, folding endurance, thickness, verification of optimum formula. DPPH is used to treat patch hydrogel and antioxidant activity.
Results: According to software design expert version 9.0, recommended optimum formula was 6% sodium alginate and 12% glycerin. The results of the organoleptic test were transparent yellow, distinctive odor, smooth, slick, and slightly sticky; pH was 4.43, the thickness was 0.55 mm; folding endurance was 207 times, and loss on drying was 23.58%. The results of the antioxidant activity test of phytosolve® 4021 with IC50 of 20982.409 ug/mL and a sample of hydrogel patch with IC50 of 7702 ug/mL had very weak antioxidant activities.
Conclusion: Design expert version 9.0 can be used for determination of the optimum formula for phytosolve® 4021 based on sodium alginate with good physical evaluation results and weak antioxidant activity.

Keywords: Phytosolve, *Hydrogel Patch*, Na-Alginate, SLD, antioxidant.