INTISARI

Domperidon adalah antagonis dopamin dengan efek antiemetik yang memiliki bioavailabilitas oral hanya sekitar 15%. Terapi domperidon yang ditujukan pada pasien khususnya pasien anak berupa sediaan *patch* diharapkan dapat meningkatkan kenyamanan pasien. Penggunaan asam oleat dan isopropil alkohol sebagai *enhancer* dalam sediaan transdermal dilaporkan mampu meningkatkan permeasi obat. Penelitian ini bertujuan untuk mengoptimasi sediaan matriks *patch* transdermal domperidon serta mengevaluasi permeasi formula optimum matriks *patch* secara *in vitro* dan *in vivo*.

Optimasi formula matriks *patch* domperidon dengan variasi konsentrasi asam oleat dan isopropil alkohol menggunakan metode *simplex lattice design*. Perangkat lunak WinsAAM *version 3.3.0* digunakan untuk menganalisis mekanisme permeasi obat secara *in vitro*. Analisis dengan *PK-Solver 2.0* digunakan untuk memperoleh parameter farmakokinetik secara *in vivo* pada hewan uji kelinci yang meliputi Tmaks, Cmaks, dan AUC.

Formula optimum matriks *patch* domperidon diperoleh dengan komposisi asam oleat 0,87 % dan isopropil alkohol 12,17% dalam matriks *patch*. Permeasi formula optimum matriks *patch* domperidon secara *in vitro* mengikuti model empat kompartemen dengan satu kompartemen *lag*. Profil farmakokinetik formula optimum matriks *patch* domperidon memiliki nilai bioavailabilitas absolut 2,05 % pada hewan uji kelinci secara *in vivo*.

Kata kunci: *domperidon, matriks patch, transdermal, farmakokinetik*

ABSTRACT

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Domperidone is a dopamine antagonist with antiemetic effects that has an oral bioavailability of only about 15%. Domperidone therapy in patch dosage form for patients, especially pediatric patients, are expected to increase patient convenience. Oleic acid and isopropyl alcohol as enhancers in transdermal preparations have been reported to increase drug permeation. This study aims to optimize the preparation of the domperidone transdermal patch matrix and evaluate the permeation of optimum formula in vitro and in vivo.

Optimization of the domperidone matrix patch formula with variations of the concentration of oleic acid and isopropyl alcohol was using the simplex lattice design method. The optimum formula composition for the domperidone matrix patch was tested for permeation in vitro and in vivo. WinsAAM version 3.3.0 software was used to analyze in vitro permeation. PK-Solver 2.0 was used to obtain in vivo pharmacokinetic parameters in rabbit, including Tmax, Cmax, and AUC.

The optimum formula of the domperidone patch matrix obtained was a composition of 0,87% oleic acid and 12,17% isopropyl alcohol in the patch matrix. Permeation of optimum formula of domperidone patch matrix in vitro followed a four-compartment model with one lag compartment. The pharmacokinetic profile of the optimum formula of the domperidone patch matrix has an absolute bioavailability value of 2,05% in rabbits in vivo.

Keywords: *domperidone, matrix patch, transdermal, pharmacokinetics*