

INTISARI

FORMULASI PATCH AMOKSISILIN DENGAN KOMBINASI HPMC-PVP SERTA UJI DAYA ANTIBAKTERI TERHADAP *STREPTOCOCCUS* *SANGUIS*

Stomatitis Aftosa Rekuren (SAR) merupakan salah satu penyakit yang paling sering terjadi di masyarakat. SAR dapat disebabkan oleh berbagai macam faktor, salah satunya infeksi bakteri *Streptococcus sanguis*. Amoksisilin merupakan antibiotik dengan spektrum luas yang diindikasikan untuk pengobatan infeksi, salah satunya yaitu infeksi pada rongga mulut. Penelitian ini bertujuan untuk mendapatkan formula patch amoksisilin dengan polimer HPMC dan PVP serta mengetahui efektivitas patch amoksisilin dalam menghambat pertumbuhan bakteri *Streptococcus sanguis* dengan melihat zona hambat.

Patch amoksisilin dibuat dengan metode *solvent casting* dengan perbandingan HPMC dan PVP yang digunakan 3:1, 6:1, 9:1, 12:1 dan 15:1. Selanjutnya, patch diuji karakteristik fisiknya yang meliputi keseragaman bobot, keseragaman ketebalan dan % *swelling*. Patch juga diuji daya antibakterinya terhadap bakteri *Streptococcus sanguis* dengan menggunakan metode difusi agar. Kontrol positif yang digunakan adalah amoksisilin 0,45% dan 0,9%, sedangkan kontrol negatif yang digunakan yaitu aquadest dan kelima formula patch tanpa kandungan amoksisilin. Analisis statistik dilakukan dengan metode *One Way ANOVA*.

Hasil penelitian ini menunjukkan bahwa amoksisilin dapat diformulasikan menjadi patch dengan polimer HPMC dan PVP. Hasil uji keseragaman bobot untuk formula F5 (15:1) memiliki keseragaman bobot yang paling baik yaitu $7,665 \pm 0,445$ mg, sedangkan untuk uji keseragaman ketebalan, formula F4 (12:1) memiliki keseragaman ketebalan yang paling baik yaitu $0,1405 \pm 0,0060$ cm. Hasil uji % *swelling* memberi pola semakin tinggi konsentrasi HPMC semakin tinggi % *swelling* yang dihasilkan. Hasil uji daya antibakteri berbanding terbalik dengan hasil uji % *swelling*, dimana semakin tinggi konsentrasi HPMC maka semakin kecil diameter daya antibakteri yang dihasilkan.

Kata kunci : patch, HPMC, PVP, *Streptococcus sanguis*

ABSTRACT

FORMULATION PATCH AMOXICILLIN WITH COMBINATION HPMC- PVP AND ANTIBACTERIAL ACTIVITIES AGAINST *STREPTOCOCCUS* *SANGUIS*

Recurrent Aphthous Stomatitis (RAS) is one of the most common disease in the community. RAS can be caused by various factors, one of them is bacterium *Streptococcus sanguis*. Amoxicillin is an antibiotic with a broad spectrum that indicated for the treatment of infections. One of the infections is oral cavity. The objective of this study is to get a best formula of amoxicillin patch using HPMC and PVP polymers and to determind the effectiveness of amoxicillin patch on inhibiting of the growth of bacteria *Streptococcus sanguis* by measuring the inhibition zone.

Amoxicillin patch was made by solvent casting method. The ratio of HPMC and PVP that were used were 3:1, 6:1, 9:1, 12:1 and 15:1. The physical properties of the amoxicillin patch were characterized by measuring the weight uniformity, thickness uniformity and % swelling. The ability of amoxicillin patch to realease the amoxicillin from the matrix was conducted putting the patch into the agar media containing *Streptococcus sanguis*. Amoxicillin 0,45% and 0,9% were used as the positive control. Water and the all formula without amoxicillin were used as negative control. One Way ANOVA was conducted for statistic analysis.

The results of this study show that amoxicillin can be made into a patch using HPMC and PVP as the matrix. The best weight uniformity was found at F5 (15:1) with weight uniformity value 7.665 ± 0.445 mg. The best thickness uniformity was found at F4 formula (12:1) with thickness uniformity value 0.1405 ± 0.0060 cm. Furthermore, the % swelling test for the all formula gave a trend that at a higher concentration of HPMC gave higher % swelling. Meanwhile for the ability of patch on releasing amoxicillin from the matrix gave a trend that a higher concentration of HPMC gave lower ability that can be seen from the lower diameter inhibition zone on the agar media.

Keywords: patch, HPMC, PVP, *Streptococcus sanguis*