

Abstrak

Perubahan tata guna lahan dapat mengakibatkan berkurangnya resapan air hujan serta menyebabkan limpasan permukaan meningkat dan kondisi lahan resapan yang kurang, tetesan air hujan langsung mengalir kesaluran pembuangan serta eksploitasi air tanah semakin meningkat, maka perlu dilakukan pemulihan air tanah. Upaya yang dapat dilakukan untuk mengendalikan kondisi ini, antara lain pembentukan spora biologis dengan pembuatan biopori agar terjadi proses infiltrasi dan juga pengelolaan sampah organik melalui pengomposan. Tujuan penelitian ini untuk mengetahui pengaruh lubang biopori terhadap peresapan pada drainase berpori serta mengetahui jumlah debit infiltrasi yang terjadi pada lubang biopori dengan menggunakan sampah organik. Penelitian ini dilakukan dengan menggunakan alat model drainase berpori berbentuk zig-zag dan menggunakan sampah organik serta menggunakan 3 variasi debit pengaliran di permukaan drainase. Hasil dari infiltrasi akan di bandingkan tanpa biopori dan menggunakan biopori dari nilai debit pengaliran $Q1 = 0.0008 \text{ m}^3/\text{detik}$ menunjukkan hasil tanpa biopori sebesar $0.000041 \text{ m}^3/\text{detik}$, sedangkan jumlah debit infiltrasi menggunakan biopori sebesar $0.00019 \text{ m}^3/\text{detik}$. Selanjutnya untuk debit pengaliran $Q2 = 0.0021 \text{ m}^3/\text{detik}$ menunjukkan hasil tanpa biopori sebesar $0.000076 \text{ m}^3/\text{detik}$, sedangkan jumlah debit infiltrasi menggunakan biopori sebesar $0.00040 \text{ m}^3/\text{detik}$, dan pada debit pengaliran $Q3 = 0.0034 \text{ m}^3/\text{detik}$ menunjukkan hasil tanpa biopori sebesar $0.000083 \text{ m}^3/\text{detik}$, sedangkan jumlah debit infiltrasi menggunakan biopori sebesar $0.00070 \text{ m}^3/\text{detik}$. Berdasarkan hasil pengamatan bahwa pengaruh lubang biopori terhadap peresapan pada drainase berpori yaitu semakin besar debit pengaliran maka, semakin besar debit infiltrasi yang terjadi, karena dipengaruhi oleh besarnya laju aliran.

Kata Kunci : Lubang Biopori, Sampah Organik, Debit Pengaliran, dan Infiltrasi.

Abstract

Changes in land use can result in reduced rainwater infiltration and cause increased surface runoff and less infiltration land conditions, rainwater droplets flow directly into sewers and groundwater exploitation is increasing, it is necessary to restore groundwater. Efforts that can be made to control this condition include the formation of biological spores by making biopori so that the infiltration process occurs and also managing organic waste through composting. The purpose of this study was to determine the effect of biopore holes on infiltration in porous drainage and to determine the amount of infiltration discharge that occurred in biopore holes using organic waste. This research was conducted by using a porous drainage model in the form of a zigzag and using organic waste and using 3 variations of flow discharge on the drainage surface. The results of infiltration will be compared without biopore and using biopore from the flow rate of $Q1 = 0.0008 \text{ m}^3/\text{second}$ showing the result without biopore of $0.000041 \text{ m}^3/\text{second}$, while the amount of infiltration discharge using biopore is $0.00019 \text{ m}^3/\text{second}$. Furthermore, the flow rate of $Q2 = 0.0021 \text{ m}^3/\text{second}$ shows the results without biopore of $0.000076 \text{ m}^3/\text{second}$, while the amount of infiltration discharge using biopori is $0.00040 \text{ m}^3/\text{second}$, and the flow rate of $Q3 = 0.0034 \text{ m}^3/\text{second}$ shows the results without biopori is $0.000083 \text{ m}^3/\text{second}$, while the amount of infiltration discharge using biopori is 0.00070

m3/second. Based on the observation that the effect of biopore holes on infiltration in porous drainage is the greater the flow rate, the greater the infiltration discharge that occurs, because it is influenced by the magnitude of the flow rate.

Keywords : Biopore Holes, Organic Waste, Discharge Flowing, and Infiltration.

