

INTISARI

Penelitian ini terkait pengaruh karakteristik tanah lapukan litologi berupa ukuran butir dan tingkat pelapukan batuan terhadap laju infiltrasi pada Daerah Somagede dan sekitarnya, Kecamatan Sempor, Kabupaten Kebumen, Provinsi Jawa Tengah. Penelitian ini mengkaitkan faktor ukuran butir dan tingkat pelapukan batuan terhadap laju infiltrasi melalui analisa grafik, uji statistika, dan analisa spasial. Analisa grafik dilakukan pada suatu *scatter diagram* untuk dilihat pola garis *trendline* dan nilai R^2 . Uji statistika meliputi analisa statistika deskriptif, uji normalitas, uji Mann-Whitney *U-test*, dan uji korelasi. Analisa spasial dilakukan dengan menampalkan peta laju infiltrasi dengan peta geologi, peta tingkat pelapukan batuan, dan peta persebaran butiran halus. Perhitungan nilai laju infiltrasi di lapangan menggunakan alat *Turf-tec Infiltrometer*, kemudian hasil laju infiltrasi lapangan dinormalisasi menggunakan metode Kostiakov.

Laju infiltrasi rata-rata pada satuan breksi andesit adalah 451,1 mm/jam, pada satuan batupasir sebesar 409,4 mm/jam, pada satuan tuf sebesar 130,2 mm/jam, dan pada satuan batulempung sebesar 57,6 mm/jam. Pengaruh karakteristik tanah lapukan litologi berupa ukuran butir memberikan pengaruh terhadap laju infiltrasi sebesar 32,01 % di satuan batulempung, 10,14 % di satuan tuf, 18,3 % di satuan breksi andesit, dan 12,99 % di satuan batupasir. Pengaruh karakteristik tanah lapukan litologi berupa tingkat pelapukan batuan memberikan pengaruh terhadap laju infiltrasi sebesar 18,31 % di satuan batulempung, 30,32 % di satuan tuf, 4,26 % di satuan breksi andesit, dan 6,03 % di satuan batupasir. Melalui uji korelasi, parameter ukuran butir memberikan korelasi terhadap laju infiltrasi sebesar -0,499 di satuan batulempung, -0,222 di satuan tuf, -0,387 di satuan breksi andesit, dan 0,261 di satuan batupasir. Tidak terdapat perbedaan signifikan antara laju infiltrasi di satuan breksi andesit dan satuan batupasir. Terdapat perbedaan signifikan antara laju infiltrasi di satuan tuf dan satuan batulempung. Terdapat perbedaan signifikan antara laju infiltrasi di satuan breksi andesit dan satuan batulempung.

Kata kunci: laju infiltrasi, metode Kostiakov, ukuran butir, tingkat pelapukan batuan, analisis spasial, uji statistika, analisa grafis

ABSTRACT

This research is about effect of the characteristic residual soil to infiltration rate in Somagede area, Sempor District, Kebumen Regency, Central Java Province. This research is based on effect of the “grain size” and “degree of weathering” to infiltration rate using graphic analyst, statistical test, and spatial analyst. Graphic analyst is based on the scatter diagram, and this analyst is used to get the R^2 value and pattern of the trendline. Statistical test include descriptive analyst, normality test, Mann-Whitney U-test, and correlation test. Spatial analyst is based on overlay technique, this analyst include overlay the infiltration map on the geological map, on the distribution of fine grains map, and on the degree of weathering map. In the field, infiltration rate is measured using the Turf-tec Infiltrometer, and this infiltration rate is normalization by the Kostiakov methods.

In the lithology of breccia andesit, infiltration rate is 451,1 mm/hour, in the lithology of sandstone is 409,4 mm/hour, in the lithology of tuff is 130,2 mm/hour, and in the lithology of claystone is 57,6 mm/hour. The grains size factor is give 32,01 % effect to infiltration rate in lithology of claystone, 10,14 % in lithology of tuff, 18,3 % in lithology of breccia andesit, and 12,99 % in lithology of sandstone. The weathering degree is give 18,31 % effect to infiltration rate in lithology of claystone, 30,32 % in lithology of tuff, 4,26 % in lithology of breccia andesit, and 6,03 % in lithology of sandstone. The grains size factor is have a correlation to infiltration rate, the correlation is about -0,499 in lithology of claystone, -0,222 in lithology of tuff, -0,387 in lithology of breccia andesit, and 0,261 in lithology of sandstone. Mann-Whitney U-test is about comparating the infiltration rate in 2 lithology. Infiltration rate between lithology of breccia andesit and sandstone are not significantly difference. Infiltration rate between lithology tuff and claystone are significantly difference. Infiltration rate between lithology breccia andesit and claystone are significantly difference.

Keywords: infiltration rate, Kostiakov methods, grains size, degree of weathering, graphic analyst, statistical test, spatial analyst