

VEGETASI LANTAI DAN PERANNYA DALAM INFILTRASI AIR DI SEKITAR MATA-AIR MUDAL, GIRIJATI, PURWOSARI, GUNUNGGKIDUL, DAERAH ISTIMEWA YOGYAKARTA

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INTISARI

Air merupakan salah satu sumber daya alam utama bagi organisme, yang dapat diperbaharui melalui siklus hidrologi. Air hujan masuk ke dalam tanah melalui proses infiltrasi dan menjadi air tanah. Air tanah yang muncul melalui mata-air dapat dimanfaatkan oleh makhluk hidup, salah satu contoh adalah mata-air Mudal. Pada penelitian sebelumnya, diteliti tentang komposisi dan struktur vegetasi lantai dan perannya dalam penyerapan air hujan ke dalam tanah dan limpasan, yang spesifik pada musim kemarau. Namun dalam penelitian tersebut belum dilihat faktor perbedaan topografi pada suatu wilayah, contohnya tingkat kemiringan tanah. Tujuan dari penelitian ini adalah mengetahui komposisi vegetasi lantai dan perannya terhadap infiltrasi air hujan di berbagai tingkat kemiringan tanah. Penelitian dilakukan pada bulan Maret hingga Juni tahun 2014. Sampling data vegetasi lantai menggunakan metode kuadrat dengan plot $1 \times 1 \text{ m}^2$. Analisis vegetasi lantai meliputi densitas, frekuensi dan nilai penting. Peran vegetasi lantai terhadap infiltrasi air dilihat dengan metode simulasi hujan buatan pada plot $0.5 \times 0.5 \text{ m}^2$. Hasil yang diperoleh adalah vegetasi lantai di sekitar mata-air Mudal disusun oleh 29 spesies yang termasuk dalam 10 famili yang didominasi oleh Poaceae dan Asteraceae. *Growthform* rumput terdiri dari 9 spesies, *growthform* herba terdiri dari 8 spesies, dan *growthform* semak terdiri dari 12 spesies. Cacah spesies vegetasi lantai pada musim penghujan lebih banyak daripada musim kemarau. Spesies dengan nilai penting tinggi berturut-turut adalah *Panicum repens* (34.75%), *Ischaemum* sp. (34.26%), *Elephantopus scaber* (33.61%) dan *Desmodium triflorum* (11.99%). Spesies *P. repens* tidak dijumpai di musim kemarau. Indeks diversitas vegetasi lantai termasuk dalam kategori rendah. Tumbuhan penyusun vegetasi lantai di sekitar mata-air Mudal berperan dalam menahan limpasan dan membantu infiltrasi air pada tingkat kemiringan tanah tertentu. Berdasarkan simulasi hujan buatan dengan rata-rata kecepatan hujan 67.6 mLs^{-1} , *P. repens* mampu menahan limpasan selama 27 detik dan melakukan infiltrasi sebanyak 83.2% di tanah kategori miring. *Mimosa pudica* mampu menahan limpasan selama 18 detik dan melakukan infiltrasi sebanyak 75.9% pada kategori tanah miring. *E. scaber* mampu menahan limpasan selama 15 detik dan melakukan infiltrasi sebanyak 71.6% di tanah kategori landai.

Kata Kunci: Vegetasi lantai, infiltrasi, tingkat kemiringan tanah, mata-air

FLOOR VEGETATION AND ITS ROLE ON WATER INFILTRATION IN SURROUNDING MUDAL SPRING, GIRIJATI, PURWOSARI, GUNUNGKIDUL, DAERAH ISTIMEWA YOGYAKARTA

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ABSTRACT

Water is important natural resource for organisms which can be renewed by hydrological cycle. Rainwater enters the ground through the means of infiltration and thus becomes groundwater. Groundwater emerges from soil becomes a spring, such as Mudal spring, and thus can be utilized further by the surrounding organism. The previous study have discussed about the structures and the roles of floor vegetation in water infiltration and runoff specifically in the dry season. However, factor difference topography, such as the degrees of slope, have not yet been studied. Therefore, this study aims to determine the structures and the roles of floor vegetation in regards of water infiltration and runoff at various degrees of slope. This study was carried out in March until June 2014. Floor vegetation data were obtained square plot method with 1x1m² plot size. The data was further analyzed, including the density, frequency, and important value of the floor vegetation. Water infiltration were analyzed using rain simulation method in 0.5x0.5m² plot size.. Results showed that there are 29 species of 10 families consist of 9 grass species, 8 herb species and 12 shurb species, constructing the floor vegetation in Mudal spring area which were dominated by Poaceae and Asteraceae. Number of species of floor vegetation in the rainy season was greater than that in the dry season. Based on the important value analysis, data from the highest value were *Panicum repens* (34.75%), *Ischaemum* sp. (34.26%), *Elephantopus scaber* (33.61%) and *Desmodium triflorum* (11.99%) respectively. *P. repens* was not found in the dry season. The diversity index of the floor vegetation can be categorized low. Floor vegetation in mudal spring area have roles in withstanding water runoffs and increasing water infiltration rates in certain degree of slopes. Based on the artificial rain simulation with average rate of 67.6 mLs⁻¹, *P. repens* and *Mimosa pudica*, can respectively withstand water runoff for 27s and 18s and had infiltration capacity 83.2% and 75.9% in steep slope, and *E. scaber* can withstand water runoff for 15s and had infiltration capacity 71.6% in gentle slope.

Key Wods: floor vegetation, infiltration, degree of slope, spring