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Komposisi Fungsional Pohon Penyusun Ruang Terbuka Hijau (RTH) di Kawasan Universitas Gadjah Mada
Nabilah Iraya Kusuma, Ir. Ni Putu Diana Mahayani, S. Hut., M. For., Ph. D.
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KOMPOSISI FUNGSIONAL POHON PENYUSUN RUANG TERBUKA HIJAU (RTH) DI KAWASAN UNIVERSITAS GADJAH MADA

Nabilah Iraya Kusuma[1], Ni Putu Diana Mahayani[2]

INTISARI

Ruang Terbuka Hijau (RTH) di kawasan Universitas Gadjah Mada (UGM) memiliki peran dalam mendukung kualitas lingkungan melalui fungsi ekologis, hidrologis, dan sosial. Potensi kemampuan RTH dalam menjalankan berbagai fungsi dapat digambarkan dari komposisi karakter fungsional pohon penyusunnya. Oleh karena itu, penelitian ini bertujuan untuk mengkaji komposisi fungsional komunitas pohon penyusun RTH di kawasan UGM terkait potensi fungsi ekologis, hidrologis, dan sosial.

Penelitian dilakukan pada kawasan UGM dengan pengamatan langsung dan pemanfaatan data sekunder inventarisasi komunitas pohon menggunakan metode *purposive sampling*. Karakter-karakter fungsional setiap jenis pohon diidentifikasi melalui studi literatur. Setiap karakter dan kelompok fungsional komunitas pohon diukur dengan nilai *Community Weighted Mean* (CWM). Nilai CWM digunakan untuk menilai dominansi karakter fungsional jenis penyusun komunitas RTH UGM dan potensinya dalam mewujudkan masing-masing fungsi tersebut.

Hasil sampling mengindentifikasi 112 jenis dari 1.601 individu pohon dalam RTH UGM. Berdasarkan nilai CWM, RTH UGM mempunyai potensi fungsi ekologis yang signifikan berdasarkan proporsi kelompok fungsional, jenis-jenis *evergreen* sebesar 84,32% dan 41,41% anggota komunitasnya mempunyai karakter kulit batang yang beralur, kasar, dan berduri berpotensi mendukung penjerapan partikel. RTH UGM juga berpotensi menyediakan sumber pakan bagi burung-burung perkotaan, yang didukung oleh dominansi ukuran biji kecil dan sedang (64,77%), keberadaan buah berdaging (41,66%), serta variasi warna bunga yang didominasi warna putih (19,11%) dan krem (18,68%). Potensi regulasi iklim ditunjukkan oleh CWM *wood density* 0,559 g/cm³, tinggi maksimum 37,42 m, dan LAI 3,131. Potensi fungsi hidrologis didukung oleh seluruh pohon-pohon penyusun yang mempunyai sistem perakaran tunggang dengan proporsi pohon yang berakar dalam sebesar 93,88%, serta bentuk tajuk *round*, *pyramidal*, dan *spreading* yang berpotensi meningkatkan intersepsi air hujan sebesar 75,76%. Aspek keamanan RTH UGM untuk masyarakat juga terjamin yang mana 99,88% pohon penyusunnya tidak berduri, 93,63% tidak beracun, dan 94,50% mempunyai dahan tidak mudah patah; aspek estetikanya ditunjukkan oleh dominasi bentuk tajuk *round* (38,48%) dan *pyramidal* (29,23%), warna daun hijau (92,69%), serta variasi warna bunga dan buah. Hasil tersebut menunjukkan bahwa komunitas pohon RTH UGM memiliki komposisi karakter fungsional yang berpotensi mendukung fungsi ekologis, hidrologis, dan sosial.

Kata Kunci: karakter fungsional, *Community Weighted Mean*, fungsi ekologis, fungsi hidrologis, fungsi sosial, ruang terbuka hijau

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FUNCTIONAL COMPOSITION OF TREES IN GREEN OPEN SPACES ON THE GADJAH MADA UNIVERSITY CAMPUS

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ABSTRACT

Green Open Spaces (GOS) in the Universitas Gadjah Mada (UGM) area play an important role in supporting environmental quality through ecological, hydrological, and social functions. The potential of GOS to perform these functions can be characterized by variations in the functional traits of their constituent tree species. Therefore, this study aimed to assess the functional composition of the tree community in the GOS of the UGM area in relation to its potential ecological, hydrological, and social functions.

The study was conducted in the UGM area through direct field observations and the utilization of secondary data on tree community inventories, with purposive sampling. Functional traits of each tree species were identified through a literature review. Each functional trait and functional group of the tree community was quantified using the Community Weighted Mean (CWM). CWM values were used to assess the dominance of functional traits among tree species constituting the GOS community and their potential to support each of the respective functions.

The sampling results identified 112 tree species comprising 1,601 individuals in the GOS of UGM. Based on the CWM values, the UGM GOS demonstrated potential ecological functions, as indicated by the dominance of functional traits, with evergreen species accounting for 84.32% of the community and 41.41% of individuals possessing grooved, rough, or spiny bark characteristics that potentially support particulate matter capture. The UGM GOS also has the potential to provide food resources for urban birds, supported by the dominance of small and medium seed sizes (64.77%), the presence of fleshy fruits (41.66%), and variation in flower colors, dominated by white (19.11%) and cream (18.68%). The potential for climate regulation was indicated by a CWM wood density of 0.559 g/cm³, maximum height of 37.42 m, and LAI of 3.131. The potential hydrological function was supported by all constituent trees having taproot systems, with 93.88% possessing deep roots, as well as the dominance of round, pyramidal, and spreading crown forms, which potentially enhance rainfall interception, accounting for 75.76% of the community. The safety aspect of the UGM GOS for the public was also supported by 99.88% of the trees being non-thorny, 93.63% being non-toxic, and 94.50% having branches that are not easily broken. Its aesthetic aspect was indicated by the dominance of round (38.48%) and pyramidal (29.23%) crown forms, green leaves (92.69%), and variations in flower and fruit colors. These results indicate that the UGM RTH tree community has a functional trait composition with the potential to support ecological, hydrological, and social functions.

Keywords: functional traits, Community Weighted Mean, ecological function, hydrological function, social function, green open space

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