

BUKTI KORESPONDENSI ARTIKEL JURNAL

KERAGAMAN DAN KEKERABATAN GENETIK *GARCINIA* BERDASARKAN KANDUNGAN SENYAWA BIOAKTIF DAN AKTIVITAS BIOLOGISNYA: KAJIAN *IN SILICO*

[Genetic Diversity and Relationship of *Garcinia* Based on Bioactive Compounds and Their Biological Activities: *In Silico* Study]

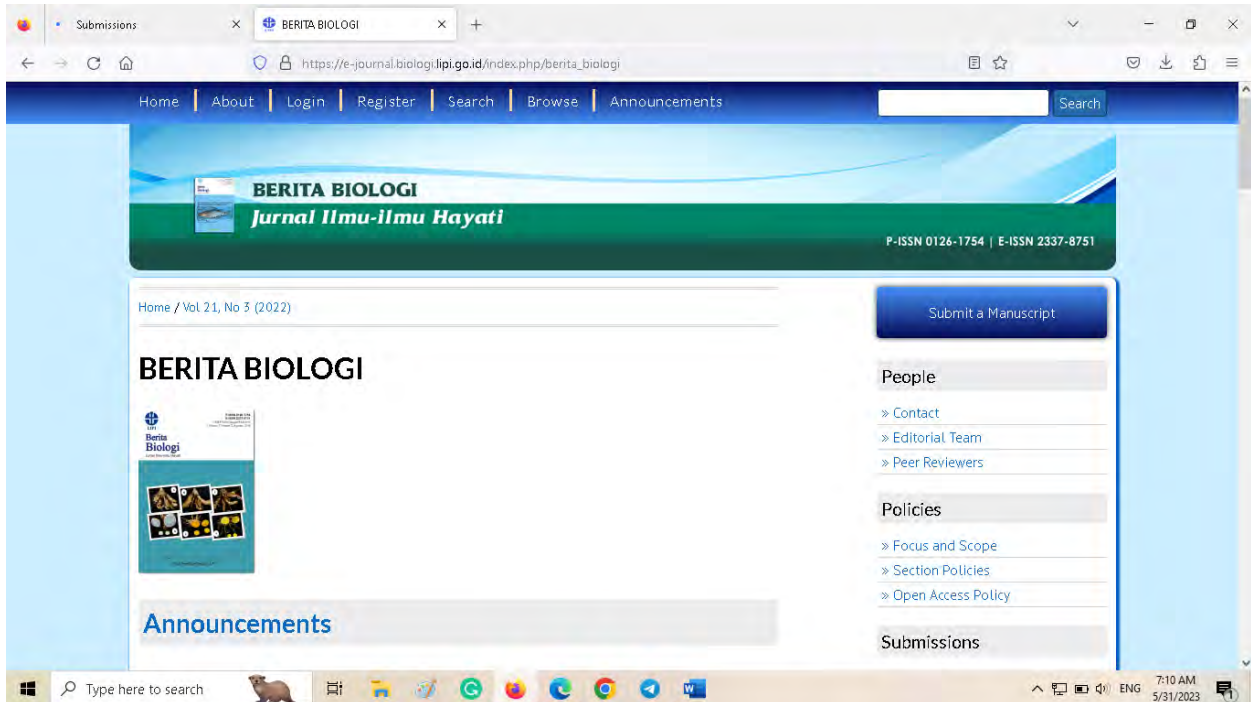
Dindin Hidayatul Mursyidin^{*,†}, dan Fajar Nurrahman Maulana

Laboratorium Genetika dan Biologi Molekuler, FMIPA Universitas Lambung Mangkurat
Jl. A. Yani Km. 36 Banjarbaru, Kalimantan Selatan 70714
email : dindinhm@gmail.com

ABSTRACT

Garcinia, belongs to the Clusiaceae family, is a very prospective plant for development. Because of apomixis, however, this plant has a narrow genetic diversity. This study aims to determine the genetic diversity and relationships of *Garcinia* based on the content of bioactive compounds and its biological activities, using *in silico* approach. A total of 64 *Garcinia* species were analyzed by a multivariate method using the MVSP ver. 3.1 software. The results showed that based on these characters, *Garcinia* had a low (narrow) genetic diversity, with a Shannon index of 0.28. However, the xanthone, antifungal activity, and leaf organ are the three of *Garcinia* characters with a high (wide) genetic diversity. The PCA revealed that these characters are contributed positively to this genetic diversity. The UPGMA analysis also revealed that this germplasm is divide into six main clusters, where the fifth is the largest (53 species). The farthest relationship is shown by *G. hanburyi* and *G. cylindrocarpa*, as well as *G. bancana* and *G. excavata*, at a coefficient of 0.54. In this case, *G. mangostana*, the most popular species of *Garcinia*, has the closest relationship with *G. wightii* at a coefficient of 0.87, and farthest to *G. cylindrocarpa*. This information might be valuable in supporting the preservation and breeding programs of *Garcinia* in Indonesia, particularly for parental selection in the development of superior cultivars.

Key words: Bioactive compound, *Garcinia*, Genetic diversity, *In silico*



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