

BUKTI KORESPONDENSI ARTIKEL JURNAL

e-ISSN 1983-4063 - www.agro.ufg.br/pat - Pesq. Agropec. Trop., Goiânia, v. 52, e72568, 2022

Research Article

Phylogenetic relationship of superior durian (*Durio zibethinus*) cultivars native to South Kalimantan, Indonesia¹

Dindin Hidayatul Mursyidin²

ABSTRACT

Durian, especially *Durio zibethinus*, is an agricultural commodity with high economic value, both in local and global markets. This study aimed to determine the genetic diversity, relationships and correlation of superior cultivars of *D. zibethinus* ('Likol', 'Sahang' and 'Si Japang') native to South Kalimantan, Indonesia, using the *rbcl* marker, and compare them with other 48 cultivars from the GenBank database. All durian *rbcl* markers were analyzed using the MEGA-X software and phylogenetically reconstructed using two approaches: maximum likelihood (ML) and neighbor-joining (NJ). The durian phylogenetic tree was assessed by bootstrap analysis, and their relationships by Pearson's correlation and principal component analysis. The durian showed a low genetic diversity ($\pi\% = 0.056$); however, unique relationships were revealed. Following the *rbcl* region, this germplasm was grouped into five clades using ML and NJ. In this case, 'Si Japang' and 'Sahang' showed to be closely related to 'T16' from Malaysia, whereas 'Likol' was related to 'Monthong' from Thailand. However, based on the genetic divergence analysis, 'Sahang' had the farthest relationship with three durians from Thailand ('Metnai Kanyao', 'Chok Loi' and 'Malet Ar-Ri').

RESUMO

Relação filogenética de cultivares superiores de durian (*Durio zibethinus*) nativas de Kalimantan do Sul, Indonésia

O durian, especialmente *Durio zibethinus*, é uma commodity agrícola com alto valor econômico, tanto no mercado local quanto global. Objetivou-se determinar a diversidade genética, relações e correlação de cultivares superiores de *D. zibethinus* ('Likol', 'Sahang' e 'Si Japang') nativas de Kalimantan do Sul, Indonésia, usando o marcador *rbcl*, e compará-las com outras 48 cultivares do banco de dados GenBank. Todos os marcadores durian *rbcl* foram analisados usando o software MEGA-X e filogeneticamente reconstruídos utilizando-se duas abordagens: máxima verossimilhança (ML) e agrupamentos vizinhos (NJ). A árvore filogenética do durian foi avaliada por análise de bootstrap, e suas relações pela correlação de Pearson e análise de componentes principais. O durian apresentou baixa diversidade genética ($\pi\% = 0,056$); no entanto, relações únicas foram reveladas. Seguindo a região *rbcl*, esse germoplasma foi agrupado em cinco clados, utilizando-se ML e NJ. Nesse caso, 'Si Japang' e 'Sahang' mostraram-se intimamente relacionadas com 'T16' da Malásia, enquanto 'Likol' relacionou-se com 'Monthong' da Tailândia. No entanto, com base na análise de divergência genética, 'Sahang' apresentou o relacionamento mais distante com três durians da Tailândia ('Metnai Kanyao', 'Chok Loi' e 'Malet Ar-Ri').

KEYWORDS: Breeding program, Borneo Island, genetic diversity, phylogenetic relationship, superior durian.

PALAVRAS-CHAVE: Programa de melhoramento, Ilha de Borneo, diversidade genética, relação filogenética, durian superior.

Scholastica x SciELO - Pesquisa Agropecuária x +

https://www.scielo.br/pat/

PORTUGUÊS ESPAÑOL

Submission of manuscripts
About the journal
Editorial Board
Instructions to authors

Journal homepage | all issues | < previous issue | current issue | next issue > | search | metrics

Our Mission
To promote the development of the agricultural research in the tropics.
Most recent issue
Pesquisa Agropecuária Tropical, Volume: 53, Published: 2023

Latest articles

- Physiological quality of *Physalis ixocarpa* Brot. ex. Hornem seeds in relation to maturation stage and growing season
- Fusarium sacchari* associated with stem rot in sweet corn in Brazil
- Profitability of organic carrot cultivation under weed interference and sowing methods
- Reaction of common bean genotypes to plant parasitic nematodes
- Using plastic house shading in the summer improves eggplant and sweet pepper yield
- Carbon stocks and labity in land use and management systems in southwestern Goiás, Brazil
- Production of pre-sprouted sugarcane seedlings using carmouba bagasse substrate

This site uses cookies to ensure you get a better browsing experience. Read our [Privacy Policy](#). OK

Telegram

Type here to search

6:28 AM 5/31/2023

Scholastica x SciELO - Pesquisa Agropecuária x PKP Login | Pesquisa Agropecuária x +

https://revistas.ufg.br/pat/login

Register Login

PESQUISA AGROPECUÁRIA TROPICAL "Conhecimento em Ciências Agrárias desde 1971" UFG

About Current Archives Announcements Contact Search

Home / Login

Login

Username *

Password *

[Forgot your password?](#)

Keep me logged in

[Register](#) [Login](#)

[Make a Submission](#)

Language
[English](#)
[Português \(Brasil\)](#)

[Information for Authors](#)

[Open Journal Systems](#)

Type here to search

6:29 AM 5/31/2023

Scholastica x SciELO - Pesquisa Agropecuária x PKP Mursyidin | Phylogenetic relatio x +

https://revistas.ufg.br/pat/authorDashboard/submission/72568

Pesquisa Agropecuária Tropical [Agricultural Research in the Tropics]

[Back to Submissions](#)

Workflow **Publication**

Submission **Review** Copyediting Production

Submission Files [Search](#)

	340641	Phylogenetic relationship of superior durian_ Title page.docx	April 16, 2022	Other
	340643	Author Declaration_Mursyidin.pdf	April 16, 2022	Other
	340644	Phylogenetic relationship of superior durian_Main Manuscript.pdf	April 16, 2022	Article Text
	340889	72568-Texto do artigo-326106-340851-18-20220419.docx	April 20, 2022	Article Text

[Download All Files](#)

Type here to search

6:31 AM 5/31/2023

Scholastica x SciELO - Pesquisa Agropecuária x PKP Mursyidin | Phylogenetic relatio X

https://revistas.ufg.br/pat/authorDashboard/submission/72568

Pesquisa Agropecuária Tropical [Agricultural Research in the Tropics]

Back to Submissions

72568 / Mursyidin / Phylogenetic relationship of superior durian (Durio zibethinus) cultivars native to South Kalimantan, Indonesia [Library](#)

Workflow **Publication**

Submission **Review** Copyediting Production

Round 1

Round 1 Status
Submission accepted.

Reviewer's Attachments [Search](#)

No Files

Type here to search

6:32 AM 5/31/2023

Scholastica x SciELO - Pesquisa Agropecuária x PKP Mursyidin | Phylogenetic relatio X

https://revistas.ufg.br/pat/authorDashboard/submission/72568

Pesquisa Agropecuária Tropical [Agricultural Research in the Tropics]

Back to Submissions

Reviewer's Attachments [Search](#)

No Files

Revisions [Search](#) [Upload File](#)

No Files

Review Discussions [Add discussion](#)

Name	From	Last Reply	Replies	Closed
Editorial Decision	gpborges	-	0	<input type="checkbox"/>
2022-08-15 01:58 PM				
▶ Submit a revised manuscript	dindinm	dindinm	2	<input type="checkbox"/>
2022-08-22 09:39 PM		2022-08-31 10:40 PM		

Type here to search

6:32 AM 5/31/2023

72568 **Mursyidin** Published [View](#)

Phylogenetic relationship of superior durian (Durio zibethinus) cultivars native to South Kalimanta...

0 Copyedited files submitted

0 Open discussions

Last activity recorded on Friday, September 9, 2022.