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Impact of Silicon-enriched Fertilizer on Basal Stem Rot Disease in Palm Species Caused by *Ganoderma boninense*

[Mayzaitul-Azwa, Nurul Jamaludin^a](#) ; [Shuhada, Nur Muhamad Tajudin^b](#) ;

[Hanafi, Mohamed Musa^c](#) ; [Huda, Nurul^d](#)
[Save all to author list](#)^a Crop Production Program, Faculty of Sustainable Agriculture, Universiti Malaysia Sabah, Locked Bag No. 3, Sabah, Sandakan, 90509, Malaysia^b Department of Plant Science, Kulliyah of Science, International Islamic University Malaysia (IIUM), Pahang, Kuantan, 25200, Malaysia^c Department of Land Management, Faculty of Agriculture, Universiti Putra Malaysia, UPM Serdang, Selangor, 43400, Malaysia^d Postgraduate School, Universitas Brawijaya, East Java, Malang, 65145, Indonesia[Full text options](#) [Export](#)

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(2011) *Journal of Phytopathology*[View all related documents based on references](#)[Find more related documents in Scopus based on:](#)[Authors >](#) [Keywords >](#)**Abstract**

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Abstract

Silicon (Si) is the second most abundant element that encourages plant growth, particularly in higher plants. This research maximizes Si's stress-tolerance benefits for plants. Therefore, this study aimed to evaluate the impact of silicon-enriched fertilizer in reducing the impact of Basal Stem Rot (BSR) disease in palm species, suggesting a potential sustainable solution to this critical agricultural challenge. The study utilized the root-sitting technique on three-month-old palm seedlings grown under controlled nursery conditions. The T1 and T2 seedlings were

untreated with silicon-enriched fertilizer. In contrast, the T3 seedlings were treated with 500g of silicon-enriched fertilizer. The T2 and T3 seedlings were further challenged with *G. boninense* PER 17 using the rubber woodblocks (RWBs) sitting technique during the nursery trial (10 months). Results revealed that disease incidence (DI) in oil palm (50.0%) and betel nut palm (44.4%) for T3 seedlings was significantly lower ($p \leq 0.05$) compared to T2 seedlings, both of which had a DI of 94.4%. The BSR DI in T3 seedlings was reduced by 52.63% in oil palm and 67.35% in betel nut palm. These findings suggest that treatment T3 offers protection against *G. boninense* infection in both palm species. The results demonstrated that treatment T3, involving silicon-enriched fertilizer, significantly reduced the progression of BSR disease in palm seedlings, highlighting its effectiveness as a disease management strategy. © Universiti Putra Malaysia Press.

Author keywords

Basal stem rot; betel nut palm; boninense; Ganoderma; oil palm; silicon

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