An Overview of Stress-Tolerant Promoting Endophytic Fungal Isolates from Hiyung Chilli Grown in South Kalimantan: Endophytic Fungi of Hiyung Chilli Peppers

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Abstract	Endophytic fungi are a unique class of microorganisms that lives in plant tissues. These fungi could spread from roots to shoots and interact with nearly all plants in a symbiotic, mutualistic, or commensal manner. Endophytic fungi are believed to exert several roles related to plant growth, including the ability to tolerate stress, especially in Hiyung chilli plants. This plant is widely cultivated in Indonesia and is a well-known host for endophytic fungi. The Hiyung chilli is a popular variety grown in the South Kalimantan Province, which receives national recognition and is geographically certified by the Indonesian government. This wetland-cultivated chilli plant has a uniquely high capsaicin content and long fruit shelf life compared to other varieties. Although endophytic fungal isolates are prevalently found on chilli plants, their potential to influence the growth of their host remains to be proven beyond a doubt. This review emphasizes the sparse reports on the potential of these antagonistic fungi in protecting chilli plants against other pathogens by producing auxin/Indole-3-Acetic Acid (IAA) and capsaicin. The study hypothesised that the antagonistic abilities of these endophytic fungi against other fungal pathogens are related to their IAA- and capsaicin production that synergistically increase the chili plants' threshold against biotic and abiotic stress.
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