

Duckweeds as Future Food: Reinvention of ASEAN's Local Wisdom

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ABSTRACT:

Around the world, duckweeds have recently emerged as a future source of sustainable protein and healthy diet. Duckweeds refer to a group of small, aquatic, fast-growing flowering plants that can be abundantly found floating in a wide range of freshwater habitats throughout Southeast Asia. Common duckweed plant species in this region include *Lemna aequinoctialis*, *Spirodela polyrhiza*, *Landoltia punctata*, and *Wolffia globosa*. Whereas the duckweed plants can generally be applied as feed for many animals and fish, *Wolffia* has particularly been consumed as traditional food in several ASEAN countries such as Thailand and Laos. Locally referred to as “Khai-nam” or “Phum” in Thailand, *Wolffia* is rich in protein, vitamins, and minerals. The protein productivity per land area of *Wolffia* has been reported as several folds greater than soybean. However, the actual potential of *Wolffia* and the other duckweeds as the future food source will need to be substantiated under large-scale cultivation. The reinvention of duckweeds from traditional food and feed into new agricultural crops will also require concerted efforts from academia, governmental agencies, and food industries to further develop the cultivation technology and applications into food products that meet the standards and expectation of the industries and modern-lifestyle consumers.