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From Traditional Food to Emerging Industry: The Rise of Wolffia in Thailand

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Wolffia globosa has been consumed in Thailand and neighboring countries for generations. However, its consumption declined substantially, partly due to limited awareness of its nutritional properties and the unreliable availability of biomass. Prior to 2020, *W. globosa* was primarily harvested from natural ponds, resulting in low yields, seasonal variability, and food safety concerns. The taxonomic and genetic diversity of *Wolffia* and other duckweed genera in the region was also poorly understood. Over the past decade, growing demand for plant-based proteins and wellness foods, together with increasing recognition of duckweed as an alternative protein source, has renewed interest in this tiny duckweed among Thai consumers. Driven largely by Thai startups developing large-scale cultivation technologies, related food products ranging from fresh ingredients to innovative health foods are now available in more than 300 shops and restaurants nationwide. The Thai government has also established Good Agricultural Practice (GAP) standards for *W. globosa* production and promoted public awareness of its nutritional and health benefits. Currently, 150 farms are GAP-certified, producing an estimated 500 tonnes of fresh biomass annually, with production projected to reach 3,000 tonnes in 2027. The expansion of the industry has been accompanied by rapid growth in scientific research. Duckweed-related publications increased from an average of 1.8 articles per year during 2016–2020 to 9.25 during 2021–2024, followed by 39 publications in 2025 and 46 in 2026. These developments demonstrate the rapid emergence of *Wolffia* spp. as a high-value crop and highlight Thailand's growing role in advancing duckweed research and commercialization.

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References

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