

Therefore, precise environmental control is not only an important foundation for efficient *G. lucidum* production, but also a key factor in enhancing its medicinal value and market competitiveness.

Standardized production and intelligent management are important trends in the future development of the *G. lucidum* industry. By establishing unified technical procedures for strain management, substrate preparation, sterilization and inoculation, fruiting management, harvesting, and processing, the standardization level of the production process can be improved, enabling stable product quality and whole-process traceability. Meanwhile, the application of intelligent technologies such as IoT, automated control, and big data analysis is gradually transforming *G. lucidum* production from traditional experience-based management toward precision, digitalization, and smart management. In the future, with the continuous improvement of standardization systems and the sustained development of smart agricultural technologies, the *G. lucidum* industry will further achieve high-quality, green, and modernized development.

Conflict of Interest Disclosure

The author affirms that this research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

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