Cultivation of the Edible and Medicinal Mushroom *Grifola frondosa* (Dicks.:Fr.) S. F. Gray (Maitake)—Relevance of Literature to Production in Australia

**ABSTRACT**

The demand for both European and Asian specialty edible and medicinal mushrooms is steadily increasing, especially in the United States and the Southeast Asia–Pacific region. World mushroom consumption has, in the last decade, increased both in quantity and in the variety of species cultivated. With an increasing demand for both European and Asian specialty mushrooms, the specialty market now accounts for approximately 70% of total world production. In Australia, the parallel increase in demand for specialty mushrooms is due to a number of factors, such as increased Asian immigration, the adoption of a healthier Australian diet, and the rapid acceptance of new products into Australian cuisine. The mushroom growing industry is now the third largest horticulture industry in Australia, worth US $100 M per annum. Because of its proximity to Asia, its multicultural population base, and existing trade links with the United States, Europe, and Asia, Australia is ideally situated to develop specialty mushroom crops to satisfy both domestic and international market demands. *Grifola frondosa* (maitake) is a most highly regarded mushroom in Asia, but its rich, woody taste, distinctive aroma, and firm texture have ensured its adoption as a specialty culinary mushroom for use in international cuisine. In addition, this mushroom is also valued for its claimed medicinal and nutriceutical properties. Aspects of *G. frondosa* morphology, taxonomy, nutritional and medicinal properties, environmental and nutritional requirements for fruit body production, and cultivation techniques are reviewed. When subject to close scrutiny, much of the information available in the public domain is unreliable, and the need for a fresh and scientifically vigorous approach is evident. The relevance of this information to production in Australia is also discussed.

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Grifola frondosa (Dicks: Fr.) S.F. Gray (Gray, 1821) was previously described as Polyporus frondosus (Dicks.: Fr.) Maitake, Hen-of-the-Woods, H. caput-medusae Syn. H. erinaceus L. edodes. The maitake D-fraction (MD-fraction) from Grifola frondosa (Dicks: F) S.F. Gray was tested in a long-term trial with 35 HIV patients. A total of 85% of responders reported an increased sense of well-being with regard to various symptoms and secondary diseases caused by HIV (Figure 3). Twenty patients showed an increase in CD4+ cell counts to 1.4–1.8 times and eight patients a decrease to 0.8–0.5 times (33). Obtained by collection from the wild, cultivation of mushrooms in farms and harvesting of the fruiting bodies or by cultivation of mycelium in fermenters with liquid or solid substrates. Extracts could be prepared by extraction of mushrooms (dried or fresh) with suitable solvents.