

Cultivation of *Agaricus blazei* Murr., a Mushroom of Culinary and Biomedical Importance

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Agaricus blazei Murr., an attractive warm weather mushroom with sparkling brown gilled cap and snow white stipes often enlarged at the base, emerges as an exceptional gourmet and medicinal mushroom. In Japanese markets, a steep price has been paid for this highly sought-after species, best known as himematsutake or kawariharatake in Japan, gee song rong (translated from himematsutake) or Brazilian mushroom in China, and mushroom of the god (cogumelo deus) or mushroom of the sun (cogumelo di sol) in Brazil. It is also simply known as ABM (*Agaricus blazei*). Several well-designed sites on the World Wide Web market *A. blazei*, with vivid pictorial and verbal images, color, motion, and sound. E-commerce in *A. blazei* is dominated by Brazil, China, and Japan. The potential of *A. blazei* as a valuable mushroom was discovered in 1965 by a Japanese immigrant in Brazil, where these mushrooms grow abundantly in the wild, particularly in the region of a small village named Piedade, in the northwest of St. Paul City (Sao Paulo). *A. blazei* was first cultivated outdoors in a warm climate. Dr. I. Iwade of the Iwade Mushroom Institute in Japan was instrumental in the success of indoor cultivation of *A. blazei* in 1975. This article is presented as a practical guide on cultivation including strain selection, sources of culture/spawn/growers, and the rationale and the process of cultivation. Details on formulation of fermented substrates and alternatives as well as the art and science of compost making are given.

In contrast to the white button mushrooms, *Agaricus bisporus*, higher temperature and lighting are required to grow *A. blazei*. Of special interest and importance are: (1) understanding the carbohydrate metabolism of *A. blazei*, a second-stage decomposer; (2) importance of microbial characteristics of the fermented substrate and nonsterile soil casing or alternatives (bacteria seem to play a part in triggering primordia formation); (3) deliberate use of thermophilic microorganisms, such as bacterium 864, a species yet to be typed, in phase II fermentation of compost (pasteurization); and (4) methodology used to enhance mushroom quality and yield and shorten production time: (a) triggering primordia formation simply by using a plastic cover over the mushroom bed for a couple of days when spawn run is completed; (b) the application of embedded physical barriers in the soil casing layer—Chen and Miles observed earlier fruiting body formation in *Ganoderma lucidum* (Curt.: Fr.) P. Karst. consequent to topographic or texture change in the culturing medium; and (c) providing fluctuation of day/night temperature during fruiting body development. Proper management of growth parameters from spawn run, primordia formation, to fruiting body formation, presented in a composite table, is the key for success in cultivation of *Agaricus blazei*, a highly prized mushroom with exceptional nutritional value, taste, aroma, and biomedical importance.