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Growth Characterization and Triterpenoid Derivatives Quantification of *Ganoderma* spp. Using HPLC

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Mycelium of *Ganoderma lucidum* (W.Curt.:Fr.) Lloyd grew on the surface of molasses to form mycelial mats after about 12 days. When the mycelial mats became older, the color changed to a darker hue and wrinkled. It took about 9 days for the mycelium of *G. tsugae* Murrill to cover the whole surface of the molasses. Mycelial mats of *G. tsugae* were soft, and the old mycelia turned to yellow in color. Harvesting three pieces of mycelial mats of *G. lucidum* was enough to get 0.96 g of dried biomass. For *G. tsugae,* the mycelial mats were lighter. On wheat grains, the mycelium of *G. lucidum* needed 20 days to permeate throughout the grains. The mycelium of *G. tsugae* needed only 15 days. Both *Ganoderma* species produced primodia for approximately 65 days, and the mature basidiocarps were formed in about 100 days. The pH of extracts from both fungi became less acidic when harvested after longer periods. All the separation spots of the samples had an Rf value below 0.92. The TLC method detected the presence of triterpenoids in the extract. The different concentrations of thymol salt were used to obtain the standard curve through HPLC method. The values of triterpenoid concentrations, which refer to the peaks as P_1, P_2, P_3, P_4, P_5, and P_6 in the samples, were calculated based on this standard curve. P_1 was obtained in every stage of incubation. P_3 and P_6 were detected only in the fruiting body, whereas P_2, P_3, P_4 were the major triterpenoids of the mycelium. The highest triterpenoid production was found after 110 days; the fruiting body stage of *G. tsugae* is P_5 with 1212.00 μg/mL. *G. lucidum* showed triterpenoid concentration and derivatives six times higher than *G. tsugae*.