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# OPTIMIZING *GRIFOLA SORDULENTA* AND *GRIFOLA GARGAL* GROWTH IN AGAR AND LIQUID NUTRIENT MEDIA

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## ABSTRACT

***Grifola sordulenta* and *Grifola gargal* are native edible mushroom species of Argentina. The study of their growth is useful as a first step for the optimized production of those constituents with nutritional, nutriceutical, and pharmacological value. The effect of temperature, pH, and supplements (millet and sunflower seed hulls) on agar medium and the effect of temperature and sunflower seed broth on liquid medium, were evaluated. On malt-yeast-peptone-agar medium, the highest rate of mycelial growth and biomass production for both *Grifola* species was at pH 4. After 20 days culture, both biomass production and colony diameter were significantly higher at 18 C than at 24 C in the case of *G. sordulenta*, while *G. gargal* did not grow at 24 C. For both species, addition of milled sunflower seed hulls (0.4%) to the medium significantly increased mycelial growth diameter and biomass production. In the case of liquid culture of *G. sordulenta*, the addition of 26% or 39% sunflower seed broth to the medium significantly increased the mycelial biomass (by almost 3 times) compared to the control. There were no differences in the mycelial biomass production at 24 C, irrespective of the sunflower seed broth content, and also the mycelial biomass was much lower than the one obtained at 20 C. *G. gargal* showed a significant mycelial mass increase (*ca*. 100%) at both 26% and 39% sunflower seed broth at 20 C, while at 24 C there were no significant differences in relation to sunflower seed broth rates compared to control. The best culture conditions for agar and liquid culture of these *Grifola* species are discussed.**

**Key words: *Grifola gargal*, *Grigola sordulenta*, mycelium culture, mycelium biomass, agar culture, liquid culture.**

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