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Comparative Study of Fatty Acids and Phenolic Compounds in Shiitake Mushroom (*Lentinula edodes*) by Korean and Chinese Medium-based Bag Cultivation Method according to Harvesting Cycles

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[Introduction]

Lentinus edodes (shiitake) is the second most produced mushroom in the world and has been used due to its unique taste and flavor, as well as high amounts of nutrients. China is the largest mushroom producer in the world and shiitake is the most commonly cultivated species. Shiitake is one of mainly consumed mushrooms in Korea, but many farms are using imported Chinese medium inoculating spawn due to lack of technology to make sawdust medium for bag-cultivation. The goal of this study is to compare the value of fatty acids and phenolic compounds in bag-cultivated shiitake sold in Korean market with regard to harvesting cycle and sawdust medium origin.

[Materials and Methods]

A variety, L808 shiitake mushrooms were provided from two farms located in Jangsu, Korea. The mushrooms were harvested four times each on Korean and imported Chinese sawdust medium. Fatty acids and phenolic compounds analysis were conducted by GC-FID and LC-ESI-MS/MS system.

[Results and Discussion]

Major fatty acids found in shiitake mushroom were linoleic acid, palmitic acid and oleic acid. The content of fatty acids and calculated values were significantly different with respect to harvesting cycle ($p < 0.01$) and decreased with respect to harvesting times (no trend) and the variation was large for each fruiting body. The factor, medium origin showed significantly different only in the content of PUFA and total fatty acids. Shiitake mushroom cultivated on Korean sawdust medium contained more PUFA. On the other hand, phenolic contents was not significantly different with respect to origin of medium. The result of this study could provide useful scientific basic data in the event of problems related to marking of origin and differences in functional nutrition according to the harvesting cycle.

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