
Nuclear Types on the Basidiospores and Mycelia of Edible Mushroom *Oudemansiella aparlosarca* and It's Influence on Basidiospore Diameter

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The *Oudemansiella aparlosarca* is an edible fungi commonly called as Gilly mushroom preferred by consumers for its pharmaceutical properties. Even though there were many reports on cultivation strategies of *O. aparlosarca*, very rare studies have been performed on nuclear types and genetics. Therefore, this study aimed to identify nuclear types in basidiospores, homokaryotic and heterokaryotic mycelia, and find the influence of nuclear types on basidiospores diameter of *O. aparlosarca*. The two parent strains; strain-55, and strain-81 were used in this study and maintained for fruiting body production. Single spores were isolated from spore suspensions. The basidiospores and mycelia were stained and observed under the UV fluorescence microscope. The study showed four kinds of nuclear types on basidiospores, and homokaryotic, heterokaryotic mycelia that included non- nuclear type, mono nuclear type, bi nuclear type, and multi nuclear type of nucleates. In both studied strains, the bi- nuclear type of spores was dominantly observed and the occurrence of non- nuclear type of spores was lower than the other nuclear types of spores. The highest spore diameter size was observed in multi nuclear type of spores and it was 14.78 μm in both of the parent strains while the lowest diameter size of spores was observed in non- nuclear type, and the average sizes were 11.52 μm and 12.15 μm in parents strain-81 and strain-55, respectively. Bi nuclear type was vastly presented in heterokaryotic mycelia, and the multi nuclear type was high in homokaryotic mycelia. The observed binuclear type of spores could be the result of post-meiotic mitosis and most of them are heterokaryons. The diameter size of basidiospores increased with the number of basidiospores nuclei. We concluded that *O. aparlosarca* contains homokaryotic and heterokaryotic basidiospores which revealed an amphithallic life cycle.

Keywords: Life cycle, Nucleate types, Oudemansiella aparlosarca, Single spores