Poster Presentation 2

P2-06

Monokaryotic fruiting body and clamp cell formation in *Mycoleptodonoides aitchisonii* (Bunaharitake)

Rini Riffiani, Wada Takayuki, Norihiro Shimomura, Takeshi Yamaguchi, Tadanori Aimi
Tottori University, Japan

Two types of sexual reproduction systems exist in basidiomycete mushrooms: heterothallic and homothallic systems. The term heterothallic refers to mating between two separate monokaryons carrying compatible mating type that is required for the formation of clamp cells and complete fruiting bodies. However, monokaryotic fruiting body formation was previously reported in *Schizophyllum commune*, *Sistotrema brinkmanii* , and *Coprinopsis cinerea*. Therefore, it is unclear whether dikaryotizaton is necessary for the formation of clamp cells and/or complete fruiting bodies.

Purpose: Here, I describe monokayotic clamp cell formation, fruiting body formation and meiosis in *Mycoleptodonoides aitchisonii*.

Methods: Several parameters like the morphological and cytological characterization of fruiting bodies, clamp cell formation in monospore isolates and monokariotic fruiting were examined.

Results and conclusions: A single dikaryotic *M. aitchisonii* strain, TUFC50005, and 20 monokaryons derived from the 50005 strain, which exhibited a wide spectrum of monokaryotic fruiting and monokaryotic clamp cell formation. Most strains formed primordia, or young fruiting body-like structures, but only one of the monokaryons, strain TUFC50005-4, formed a complete fruiting body, even though it had only one nucleus and produced only two basidiospores after meiosis. We demonstrated that dikaryotization was not required for clamp cell formation, fruiting body formation, and meiosis in this mushroom. This is one of the first reports to show that mating and nuclear fusion are not essential for mushroom development.