

ISOLATION OF HALOTOLERANT FUNGI FROM PICKLED FOOD AND THEIR GROWTH PERFORMANCES IN DIFFERENT SALINE CONDITIONS

M.W.M.T.U.G. Makuldeniya¹ and M.P.C.S. Dhanapala^{1*}

¹ Department of Molecular Biology and Biotechnology, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka.

Highly concentrated salt is one of the oldest food preservation techniques used by communities worldwide for centuries. A high concentration of salt makes an unfavourable environment for microbial growth by creating a water stress environment. Pickling is one of the widely used food preservation methods based on the use of high salt concentrations. But the most pliable food pathogens like fungi can still contaminate salt-persevered food. Fungi that can tolerate high salt concentrations are known as halotolerant fungi. Most of the salt-tolerant fungal species belong to the phyla Ascomycota and Zygomycota. *Penicillium* is one of the well-studied fungal genera, while the genus *Mucor* has many industrial applications. These fungi are reported as processed food spoiling fungal genera. Most of the species belonging to the genus *Penicillium* can tolerate higher salt concentrations, closer to 20% NaCl. Most of the species that belong to the genus *Mucor* can tolerate 3% NaCl without distracting their enzymatic activities. In this study, a few halotolerant fungal species responsible for contaminating pickled lime were isolated and identified based on colony characteristics and reproductive morphology. Furthermore, the salt-tolerant ability of the isolated fungi was tested using a modified PDA medium consisting of different salt concentrations. The NaCl concentration series was designed from 0.0 mold m⁻³ to 1.0 mold m⁻³ with 0.2 intervals. Based on the colony characteristics and microscopic features, the isolates were identified as *Penicillium* sp. and *Mucor* sp. *Penicillium* sp. recorded the highest growth in 1.0 mold m⁻³ NaCl medium, and it was more stable than *Mucor* sp. at higher salt concentrations. *Mucor* sp. showed the optimum growth at 0.2 mold m⁻³ NaCl, and the growth decreased with the increasing salt concentration.

Keywords: Morphology, *Mucor*, *Penicillium*, Pickled food, Salt-tolerant