HETEROLOGOUS EXPRESSION OF HYDROPHOBIC CELL SURFACE PROTEINS OF *MUCOR LUSITANICUS*

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Mucor lusitanicus is recognized for inducing postharvest decay, in addition to its capacity to trigger infections in humans, referred to as mucormycosis. In the fall of 2013, a spoilage incident led to a national recall of Chobani yogurt contaminated with this fungal species. Previous studies have linked spore wall proteins (CotH) and hydrophobic surface binding proteins (HsbA) to virulence, indicating their involvement in the disease's pathomechanism. We aimed to produce these proteins in large quantities using *Pichia pastoris* and *Penicillium chrysogenum* model organisms. We constructed expression plasmids with His-tags specific to the producing strains, using psk275paf for *P. chrysogenum* and pPICZαA for *P. pastoris*. *P. pastoris* received the plasmid constructs through electroporation, whereas PEG-mediated transformation was employed for introducing the constructs into the filamentous fungus *P. chrysogenum*. The transformant cells were selected on medium supplemented with zeocin and pyrithiamine, respectively. For the *P. pastoris* expression system, transformant colonies that emerged on the selective culture medium underwent screening using colony PCR technique, revealing numerous transformants carrying the *cotH4* and *hsbA1-5* genes. Chromatographic purification of recombinant cell surface proteins is currently in progress. The CotH4 protein had been previously generated in large quantities by the research team with assistance from the *P. chrysogenum Δpaf* strain. The desired protein was successfully purified using a multi-step chromatography procedure. Verification of the recombinant CotH4 protein was carried out using SDS-PAGE and visualised by Coomassie blue and silver staining. Conformation of the presence of the 65.31 kDa CotH4 protein was obtained *via* MALDI-TOF MS analysis. The research was supported by the projects NRDI K131796, ELKH 2001007 and NRDI TKP-2021-EGA-28 and supported by the ÚNKP-23-4 -SZTE-649 New National Excellence Program of the Ministry for Innovation and Technology from the source of the national research, development, and innovation fund.