Aalto University
School of Engineering

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Diversity and biologically active substances of the mold in the building

Title of the dissertation	Tracking diversity, metabolic activity, and bioactive metabolites of the building mycobiota – examples and novel findings
Contents of the dissertation	In recent years, there has been a growing understanding of the impact of the microbial diversity of our environment on our well-being. The buildings where we spend a large part of our time are a significant part of our living environment. Although buildings must be built, maintained and, if necessary, repaired in such a way that mold damage does not occur, our building stock still has repair debt, and microbial or mold damage is not yet completely a phenomenon of only the past. Among microbes, fungi are known to produce many kinds of substances, some of which have different biologically active effects. Some substances may have harmful effects, while some have been used, for example, in the pharmaceutical industry. It is estimated that most of the biologically active compounds produced by fungi have yet to be found. In this dissertation, the diversity of fungal (mold) species was tracked from some facilities where long-term moisture stress on the structures had been observed and where the users of the facilities had gained health problems related to indoor air. Among the species, there were few that were not previously or were only rarely reported in building structures or indoors. The biological activity was measured using toxicological methods. Several species were found to produce liquid droplets containing spores and secondary metabolites such as biologically active substances, hydrophobic substances, and surfactants. These droplets were also shown to transfer through the air space. In addition, the dissertation presents the differences in metabolism between fresh and actively growing and dried and dormant mold growths using fast microscopic and toxicological methods.
Field of the dissertation	Indoor Environment Technology
Doctoral candidate	Johanna Salo, M.Sc. (Tech.), born in 1972 in Espoo, Finland
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Electronic dissertation	https://aaltodoc.aalto.fi/handle/123456789/116809
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