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Fungi in air and on wooden constructions of old historical building

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Since the main artifacts in the Museum of Folk Architecture and Life of Ukraine "Pyrogovo" are built of wood, they are extremely vulnerable to the action of biological agents, especially microfungi. The house of village Samary from Volyn region, which is the most ancient artifact in the museum, was examined to identify the fungi spectrum on the wood and in the air. 20 samples of building constructions and 8 air samples have been collected inside and outside the studied house.

In total, 11 species and 4 genera (35 specimens) of microfungi were identified from 20 samples of building constructions of the studied house. 25 fungi specimens belonging to 6 species (*Aspergillus niger*, *Alternaria tenuissima*, *Chaetomium globosum*, *Mycelia sterilia*, *Stachybotrys chartarum*, *Trichoderma viride*) and 4 fungi which was possible identified only to genus *Acremonium*, *Fusarium*, *Mocladium* and *Penicillium* were found on wooden walls. Five specimens belonging to four species: *Alternaria alternata*, *Chaetomium globosum*, *Mycelia sterilia* and *Aspergillus niger* were found on the thatch. Two specimens belonging to 2 fungi species were found on the wood and clay (*Alternaria alternata* and *A. tenuissima*) and on the putty (*Aspergillus niger*, *Alternaria tenuissima*). And only one specimen *Alternaria tenuissima* was isolated from the soil floor.

From 7 air samples were received 11 species and 5 genera (30 specimens) of microfungi. The 8th air sample that was selected outside did not give any results, therefore it was not included to the table. 22 fungi specimens belonging to 8 species (*Aspergillus niger*, *A. flavus*, *A. repens*, *A. parasiticus*, *Alternaria tenuissima*, *Mycelia sterilia*, *Absidia spinose* and *A. glauca*) and 5 fungi which were possible identified only to genus *Phoma*, *Fusarium*, *Penicillium*, *Alternaria* and *Trichoderma* were received from air samples taken inside the house. 8 specimens belonging to 7 species (*Rhizopus stolonifer*, *Aspergillus niger*, *A. flavus*, *A. repens*, *Mucor mucedo*, *Trichoderma viride* and *Alternaria tenuissima*) and 1 genus *Fusarium* were identified from air samples taken outside the house.

The most abundant species of the Samary house on the construction substratum were *Aspergillus niger* and *Alternaria tenuissima*, in the air - *Aspergillus flavus*, *A. repens*, *A. niger* and *Alternaria tenuissima*. Of all the identified fungi can damage the wood following: *Aspergillus niger* causes black mold; *Aspergillus flavus* - cancerogenic mold; *Alternaria alternata* - toxic mold and blue stains; *Stachybotrys chartarum* - toxic mold; *Trichoderma viride* cases mold and produces enzymes.