The Influence of Four Commercial Wood-surface Treatments on Mould-fungi Growth in a Pure Culture

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The increased concern regarding mould on wood-based building materials has raised demand for sustainable biocidal treatments to protect early contamination during the construction stage of timber buildings. By providing surface protection for all type of wood-based construction elements already at the construction site will reduce the mould-associated risk for not only the construction elements but also for the indoor climate and dwellers at the use-stage of the building. The purpose was to test the protective effect of commercial water-based treatments containing different biocides on single mould fungi growth in pure culture.

Small specimens of Scots pine sapwood and heartwood, and Norway spruce were treated with four treatments, and a fungal test performed in 90 mm Petri plates. Two samples (treated and untreated control) placed on the plate with a distance between each other, and between, a fungal inoculum placed. Five pure cultures of fungi species used in the study: *Aureobasidium* sp., *Trichoderma* sp., *Aspergillus* sp., *Cladosporium* sp., *Penicillium* sp. The specimens exposed at the temperature of 24°C and relative humidity of 90%.

The treatments contained biocides, i.e.: treatment 1: tetramethylol acetylenediurea and iodopropynyl butyl carbamate (IPBC), treatment 2: mixture of several biocides (IPBC, benzisothiazolinone (BIT), methylisothiazolinone (MIT) and 5-chloro-2-methyl-1,2-thiazol-3-one (CMIT)/MIT mixture), treatment 3: IPBC; and treatment 4: mixture of propiconazole and [IPBC.](http://webapps.kemi.se/BkmRegistret/Kemi.Spider.Web.External/Aemne/Details/562)

The fungal growth observed in the untreated samples after four days of incubation, the specimens with treatment 4 attacked after eight days, when treatment 1 and 3 had free from fungal mycelia inhibition zone after 22 days of incubation. The moisture content after the test was similar for treated samples in plates with *Aureobasidium* sp., *Aspergillus* sp., *Cladosporium* sp., *Penicillium* sp., but was significantly higher for *Trichoderma* sp. The type of wood did not influence fungal growth in comparison to the type of treatment.

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