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**Inactivation of viruses on wood surfaces in animal husbandry**

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**Abstract:**

**Background/Objective:** Wood is a traditional construction material in animal husbandry, but has recently become less important in Germany, possibly due to a negative perception of the hygienic properties of wooden surfaces. Various guidelines demand surfaces that are easy to clean and disinfect. Whether wood as a porous material meets these requirements is often questioned. To assess this, disinfectant tests and long-term observations were conducted on different construction timbers to evaluate the biosecurity of wood as a construction material.

**Methods:** Virucidal tenacity tests were conducted on the basis of the test guidelines for animal husbandry of the German Veterinary Medical Society and current European standards. Five different types of wood carriers were contaminated with prototypes of an enveloped (Newcastle Disease Virus) or a non-enveloped virus (Enterovirus E) and then treated with different disinfectants or stored for an extended period of time. To determine efficacy, the tests were evaluated quantitatively. Effective disinfection was defined as a reduction of at least four decadal log levels.

**Results:** In the disinfection tests with basic chemical agents, fine-sawn timber with low roughness could be effectively disinfected. Peracetic acid was the most effective disinfectant. In the long-term observations with the non-enveloped virus, Douglas-fir wood was found to inactivate the pathogen most rapidly, while this was the case with pine wood for the enveloped virus. These positive effects of the wooden germ carriers can probably be attributed to their hygroscopic properties as well as to substances contained in wood.

**Conclusion:** The use of wood as a traditional construction material in livestock buildings can contribute to a more sustainable economy and climate protection. However, aspects of hygiene and animal disease control must not be ignored. The presented investigations are intended to show the compatibility of wood with the aforementioned requirements.

**Keywords:** hygiene; disinfection; inactivation; farm building; wood