Scientific documentation on UV222 in agriculture

UV222 technology overview

1. Hessling et al., 2021, The impact of far-UVC radiation (200–230 nm) on pathogens, cells, skin, and eyes – a collection and analysis of a hundred years of data

   In this extensive review, Hessling et al. present over 100 years of research in UVC disinfection, including UV doses required to inactivate various pathogens. The paper provides a comprehensive list of bacteria, viruses, and fungi that can be eliminated with UV222, along with an elaborate description of the safety of the technology.

Airborne bacteria

2. Eadie et al., 2021, Far-UVC efficiently inactivates an airborne pathogen in a room-sized chamber

   In this paper, Eadie et al. compared the efficacy of UV222 with conventional ventilation systems for disinfecting air in a room-sized chamber. The study found that UV222 lamps are highly efficient in disinfecting the air. In fact, a conventional ventilation system would need to change the air 35 times per hour to achieve the same degree of disinfection as the UV222 lamps.

Influenza and coronavirus

3. Welch et al., 2018, Far-UVC light: A new tool to control the spread airborne-mediated microbial diseases

   In this study, Welch et al. confirm that low doses of UV222 light efficiently inactivates airborne influenza virus. This highlights that UV222 represent an efficient technology for limiting transmission of airborne pathogens in occupied spaces.

4. Buonanno et al., 2023, 222-nm Far-UVC light in an occupied indoor room: quantitative field tests of significant airborne viral load reduction

   In this study, conducted by Buonanno et al., the decontamination efficacy of UV222 was tested in an occupied space with high concentration of airborne viruses. The researchers selected a mouse-cage cleaning room, known for its high levels of Murine Norovirus (MNV) contamination. The findings demonstrated that UV222 light achieved a remarkable 99.8% reduction in active airborne MNV. Considering that MNV is less susceptible to UV222 compared to influenza and coronavirus, these results imply that the reduction of influenza and coronavirus would likely be even more significant. Overall, this study highlights the potential of UV222 in mitigating airborne diseases in occupied spaces.

5. Tucciarone et al., 2022, Evaluation of UVC excimer lamp (222 nm) efficacy for coronavirus inactivation in an animal model

   In this study, Tucciarone et al. showed that UV222 can efficiently protect live chicks from airborne virus infections. The results emphasize the potential applications of UV222 in veterinary medicine and farming to combat airborne pathogens.

PRRS virus

6. Li et al., 2021, Mitigation of airborne PRRSV transmission with UV light treatment: Proof-of-concept

   Porcine reproductive and respiratory syndrome virus (PRRSV) is known to have the ability to travel long distances in the air, which poses a significant risk of spreading between pig farms and causing devastating disease outbreaks. In a study conducted by Li et al., the researchers investigated the efficacy of UV light at 222 nm and 254 nm in inactivating airborne PRRS virus. The results of the study revealed that UV light at 222 nm effectively killed the airborne PRRSV. Notably, it was found to be more than twice as efficient as UV light at 254 nm. These findings highlight the potential of UV light at 222 nm as a valuable tool for mitigating the transmission of PRRSV and reducing the occurrence of disease outbreaks in pig farming settings.