

Microgen D-125™ for the Control of Avian Influenza Virus H5N1 on Environmental Surfaces: Scientific and Epidemiologic Basis for Product Usage

Written by Benjamin Tanner, Ph.D, 2/8/08

Author Background:

Benjamin Tanner is the president of Antimicrobial Test Laboratories, a commercial microbiology laboratory. He holds a Ph.D. in Microbiology and Immunology and has worked in the disinfectant industry for several years. He is the author of the book, "Legal Aspects of Infectious Diseases." Before launching Antimicrobial Test Laboratories, he worked as a microbiologist for the Clorox Company (Oakland, CA), developing disinfectants and other antimicrobial consumer products.

Disinfection of Surfaces Potentially Contaminated with Avian Influenza:

Disinfection of surfaces that are potentially contaminated with Avian Influenza is crucial, because avian influenza and especially Avian Influenza H5N1 is a major threat to global health¹. Since the H5N1 Strain has demonstrated predominantly poultry-to-human transmission to date, control should be focused on the poultry side².

Current science suggests that viral particles aerosolized from contaminated bird feces and bird environments (including contaminated surfaces) are a factor in the spread of the virus¹. Thus, it is critical to disinfect contaminated surfaces with a product that is efficacious against influenza viruses.

Facts about the Susceptibility of Influenza Viruses to D-125™:

- 1) The various strains of influenza (lipid viruses) do not show substantially different susceptibility to disinfection³.
- 2) Lipid viruses, including influenza virus, are much more susceptible to the action of quaternary disinfectants than non-lipid viruses, such as porcine parvovirus and poliovirus – both of which appear on the D-125 label in addition to the actual influenza strains mentioned below^{4,5}. WHO guidelines for disinfection of avian influenza also confirm that these viruses are inactivated by quaternary ammoniums, and recommend such products for use in control of the virus⁶.
- 3) The US EPA has approved D-125™ claims against Swine Vesicular Virus (SVD), African Swine Fever Virus (ASF) and Classical Swine Fever (CSF), SVD are microbiologically more resistant to disinfection than influenza viruses (EPA acceptance letter to Microgen, 8/14/01).

Note: D-125™ disinfectant is also effective against more than 130 pathogenic viruses, bacteria and fungi, many of which are associated with birds (such as *Salmonella*, Newcastle Disease Virus, *Streptococcus pyogenes* M3 bird clinical isolate, and *Campylobacter*)⁴.

Relevant Efficacy Studies Demonstrating that D-125™ is Efficacious against Influenza Viruses:

Influenza A2/Japan (H2N2) (Gibraltar Laboratories Report #G88964.19)
Avian Influenza/Turkey/Wisconsin virus (Gibraltar Laboratories Report #G88694.A)
Influenza A/Victoria/(H3N2) virus (Gibraltar Laboratories Report #G88694.10)
Influenza A/Brazil (H1N1) (Gibraltar Laboratories Report #G88694.2A)
Avian Influenza (H5N1) (*Research and Planning Phase* – Southern Research)

AntimicrobialTestLaboratories LLC

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United States and Thailand Regulatory Agencies Acceptance of D-125™

- D-125™ is a US EPA registered product, carrying a current, US EPA approved master label.
- D-125™ data was relied upon by US FDA, US EPA, CDC, US Department of Labor and OSHA in updating the Blood Borne Pathogen Rule (29 CFR 1910.1030)

D-125™ Users in Southeast Asia⁷:

- Veterinary Teaching Hospital, Faculty of Veterinary Science Kasetsart University, Bangkok, Thailand - Used in combating Non-Human Pathogens (Avian Influenza H5N1)
- Patumvej Hospital, Patumtani Province, Thailand
- Ekpatum Hospital, Patumtani Province, Thailand

References:

1. World Health Organization. Avian Influenza ("bird flu") Fact Sheet. Downloaded 2/3/08. (http://www.who.int/mediacentre/factsheets/avian_influenza/en/).
2. Y Guan, H Chen, KS Li, S Riley, GM Leung, R Webster, JSM Peiris, and KY Yuen. A model to control the epidemic of H5N1 influenza at the source (2007). BMC Infect. Dis. (7): 132.
3. Rutala W. APIC guideline for selection and use of disinfectants (1996). Association for Professionals in Infection Control and Epidemiology. Am J Infect Cont Vol. 24 No. 4: 313-342.
4. Microgen D-125™ USEPA Master Label. May 17, 2007. Downloaded 2/3/08. (<http://www.microgeninc.com/milestones/PDF/D-125%20Master%20Label.pdf>)
5. Shirai J, Kanno T, Tsuchiya Y, Mitsubayashi S, Seki R. Effects of chlorine, iodine, and quaternary ammonium compound disinfectants on several exotic disease viruses. J Vet Med Sci. 2000;62:85-92.
6. World Health Organization. Review of latest available evidence on potential transmission of avian influenza (H5N1) through water and sewage and ways to reduce the risks to human health. Downloaded 2/3/08. (http://www.who.int/water_sanitation_health/emerging/h5n1background.pdf/).
7. D-125 FDA Certificate from Thailand Ministry of Public Health, March 2000. Downloaded 2/9/08 (<http://www.microgeninc.com/milestones/PDF/D-125%20FDA%20Certificate%20from%20Thailand%20Misistry%20or%20Public%20Health.pdf>)
8. Avian Influenza, Including Influenza A (H5N1), in Humans: WHO Interim Infection Control Guideline for Health Care Facilities - Date of most recent amendment: 10 May 2007.