



UNIVERSITY OF MINNESOTA

Swine Disease Eradication Center

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PEDV Viral Stability and Disinfectant Use as Compared to TGEV and PRRSV

	PEDv (cell culture adapted historical strain)	TGEv (FS772/70 cloned strain)	PRRSv (ATCC VR 2332)
Family	Coronaviridae	Coronaviridae	Arteriviridae
Temperature	Moderately stable at 50°C, lost infectivity at ≥ 60°C	Stable for 1 hour at 37°C at pH 4.0 and 8.0	Completely inactivated in 45 minutes at 56°C
pH	Stable between pH 5.0 and 9.0 at 4°C and between 6.5 and 7.5 at 37°C	Stable at pH 5.0 to 8.0 at 4°C, pH. 6.5 at 37°C	Stable at pH 5.0 to 7.0
Effective Disinfectants	<i>Phenols</i> : Tek-Trol ; 1Stroke Environ; <i>Peroxygen</i> : Virkon S; <i>Chlorine</i> : Chlorox; <i>Combination product</i> : Synergize	<i>Chlorhexadines</i> : Nolvasan, Nolvasan S; <i>Quaternary Ammonium</i> : Roccal D Plus; <i>Phenols</i> : Biophen, 1 Stroke Environ, Pheno-Tek II, Tek-Trol; <i>Peroxygens</i> : Virkon S	<i>Peroxygens</i> : Vikron S <i>Quaternary Ammonium</i> : Biosentry 904; <i>Combination Product</i> : Synergize; (<i>Others as well</i>)
References	Park SJ, et al. Arch Virol (2013)]; Veterinary Microbiology, 20 (1989) 131 – 142; Pospishil A, et al. J Swine Health Prod (2002)10(2) 81-85	Hofmann M. et al., Vet Microbiol (1989) 20, 131-142; Pocock et al. Arch Virol (1975) 49, 239-247.	Benfield et al. J Vet. Diagn. Invest. (1992) 4, 127-133, Van Alstine et al. J Vet. Diagn. Invest. (1993) 5, 621-622; Dee, et al. Can J Vet Res (2005) 69(1)64-70.

PEDV Stability

PEDV totally lost its infectivity when heated > 60°C for 30 min, whereas its titer remained relatively stable when exposed to 50°C for the same time (reduction of 0.4 log₁₀ PFU ml⁻¹, compared with control). Thermoinactivation kinetics at 50°C are demonstrated in Fig. 2. Viral infectivity decreased steadily for 1.1 log₁₀ h⁻¹ and was reduced to 0.05% of the original value after 3 h of heating, again indicating that PEDV is moderately stable at 50 ° C.

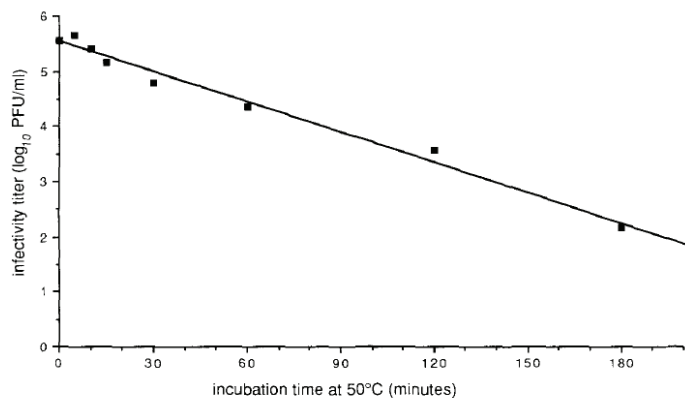


Fig. 2. Thermoinactivation kinetics of PEDV at 50°C.

From:

Hoffman M, Wyler R. Quantitation, biological and physicochemical properties of cell culture-adapted porcine epidemic diarrhea coronavirus (PEDV). Vet Microbiol. 1989 Jun;20(2):131-42