DETERMINATION OF DISINFECTANT EFFICACY AGAINST THE EGGS OF *SYPHACIA* SPECIES

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ABSTRACT

The objective of this study was to determine the rate of kill of *Syphacia* species eggs when treated with, an aqueous ready-to-use disinfectant, 2000 ppm hypochlorous acid.

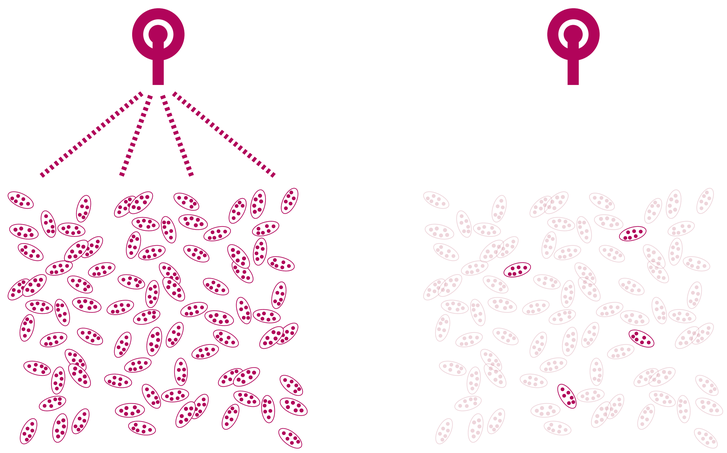
The *Syphacia* eggs were collected from the perianal area of rats (Flynn, 1973). The host animals were either Han Wistar or Sprague Dawley rats.

The collected eggs were immersed in the hypochlorous acid for a range of exposure times then placed into a hatching medium and incubated to allow determination of viability compared to untreated control eggs.

The results showed that following exposure of the pinworm eggs to the hypochlorous acid, 95% kill was achieved in 10 minutes.

95% PINWORM EGG REDUCTION

10 MINUTES LATER



EXPERIMENTAL METHOD

Parasite eggs were collected onto clear cellulose tape by pressing the tape against the perianal region of the rat (Flynn, 1973). The tape was attached to a microscope slide, sticky side up to allow contact between the parasite eggs and the test substance/hatch solution. Prior to the application of the disinfectant, the slides were examined to confirm the presence of the parasite eggs.

At ambient temperature 20 ± 2°C, each prepared slide was placed into an empty Petri-dish and sufficient attemperated Contec ProChlor applied to immerse the slide.

Following a 10 minute exposure period each slide was removed and carefully rinsed with distilled water to remove the disinfectant, leaving the eggs on the tape.

Immediately following rinsing, each slide was placed into an empty Petri-dish and sufficient hatch medium (Dix, 2004) attemperated at 37 ± 2°C, applied to immerse each slide. The slides were incubated at 37 ± 2°C for a minimum of 12 hours.

ASSESSMENT OF RESULTS

Following incubation, the hatch medium was rinsed carefully with distilled water and the slides examined microscopically to assess the numbers of hatched and un-hatched eggs present on the slide. The results are expressed in terms of percentage eggs hatched.

GROUP 1: UNTREATED CONTROL, NO EXPOSURE TO HYPOCHLOROUS ACID

SLIDE NO.	*SYPHACIA* EGGS OBSERVED			% HATCH RATE	
	HATCHED	UNHATCHED	TOTAL	PER SLIDE	GROUP MEAN
1	79	67	146	54.1%	55.9%
2	16	11	27	59.3%	
3	25	21	46	54.3%	

GROUP 2: DISTILLED WATER CONTROL RINSE INSTEAD OF HYPOCHLOROUS ACID

SLIDE NO.	*SYPHACIA* EGGS OBSERVED			% HATCH RATE	
	HATCHED	UNHATCHED	TOTAL	PER SLIDE	GROUP MEAN
1	39	22	61	63.9%	58.1%
2	87	80	167	52.1%	
3	57	41	98	58.2%	

GROUP 3: CONTEC PROCHLOR – 10 MINUTE EXPOSURE

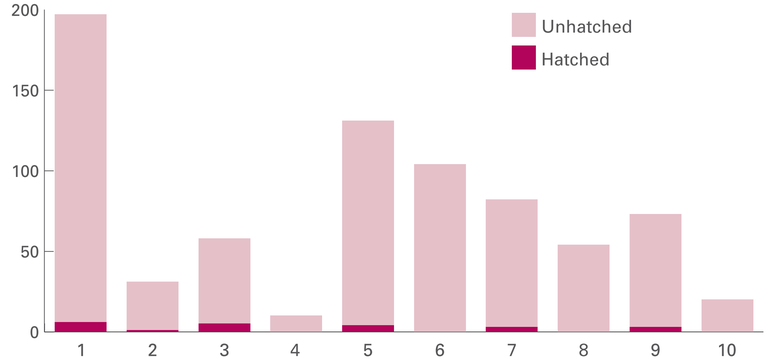
SLIDE NO.	*SYPHACIA* EGGS OBSERVED			% HATCH RATE	
	HATCHED	UNHATCHED	TOTAL	PER SLIDE	GROUP MEAN
1	6	191	197	3.0	2.57%
2	1	30	31	3.2	
3	5	53	58	8.6	
4	0	10	10	0	
5	4	127	131	3.1	
6	0	104	104	0	
7	3	79	82	3.7	
8	0	54	54	0	
9	3	70	73	4.1	
10	0	20	20	0	

The % of hatched eggs in the group treated with hypochlorous acid is calculated as a % of the untreated control group:

2.57% / 55.9% = 4.60%

This equates to a 95.40% kill.

10 MINUTE EXPOSURE TO 2000 PPM HYPOCHLOROUS ACID



CONCLUSION

Under the stated test conditions, 2000ppm ready-to-use hypochlorous acid kills 95.4% of environmental *Syphacia* species eggs in 10 minutes.

ACKNOWLEDGEMENTS

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Study Design and Implementation: Kate Read MRCVS

REFERENCES

Flynn R.J. (1973) Parasites of Laboratory Animals. Ames: Iowa State University Press, 238 – 240.

Dix J., Astill J., Whelan G. (2004) Laboratory Animals. 38, 11 – 16.

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