

Effects of different disinfection treatments on microorganisms and hatchability of Brown Tsaiya ducks' eggs ⁽¹⁾

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Abstract

The aim of this experiment was to investigate the effects of different disinfection treatments on the effect of microorganisms and hatchability of Brown Tsaiya ducks' eggs. In the experiment, the breeding eggs were divided into 7 groups, which were treated with 3 times of formaldehyde fumigation for 30 mins, treated with 250 ppm atomized chlorine dioxide for 30 mins, 2.2% and 4.4% ozone gas for 30 mins, spray with 500 ppm electrolytic oxidation water, 500 ppm quaternary ammonium compound and 20 ppm nano-silver solution for 20 mins, respectively. The disinfection effect on the number of microorganisms on the eggshell surface and hatching of the breeding eggs were determined. In addition, the pathogens in dead embryos 7 and 28 days after incubation were identified. The results showed that different disinfection methods could significantly reduce the number of the microorganisms on the eggshell surface. In terms of the effect on hatching the breeding eggs, there were no significant differences in fertilization rate, the discontinuation rate of 25-28 days of incubation, hatching rate of incubation eggs and fertilized eggs. However, the group treated with 250 ppm atomized chlorine dioxide for 30 mins had the highest discontinuation rate at 25 days of incubation. The pathogen analysis of the dead embryo at 7 days of incubation showed that the group treated with 2.2% and 4.4% ozone gas for 30 mins had significant effect on reducing various microorganisms, followed by the group treated with atomized 250 ppm chlorine dioxide for 30 mins. The results of the pathogen analysis of the dead embryo at 28 days of incubation showed that the environmental microorganisms continued to grow during the incubation period.

Key words: Breeding Egg, Brown Tsaiya duck, Disinfection.

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