

## SUSCEPTIBILITY OF THE WHITE SPOT SYNDROME VIRUS (WSSV) TO ULTRAVIOLET (UV) LIGHT IN A RECIRCULATION SYSTEM TYPE RACEWAY

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Bacterial and viral diseases are common problems in aquaculture. The use of flow-through systems frequently represents a risk of contamination resulting in diseases that impact the industry. Nowadays, the use of disinfection methods in water is a common practice to avoid the introduction of pathogens and to reduce pathogens in contaminated systems. White spot syndrome virus (WSSV) is a shrimp disease responsible for substantial economic losses in many countries. Several studies on the inactivation of WSSV by UV light have assessed the efficacy of their units by either exposing infected tissue or virus stock solution directly to a static UV light irradiation for different periods of time. None of these studies had been tested on running water. A viral challenge is necessary to determine the virucidal effectiveness of the system at 4 L/min flow rate. A challenge model was developed to observe the inactivation of the WSSV. The present study was conducted to determine if the specific pathogen free (SPF) indicator shrimp might take WSSV from infected water effluent after treatment with UV light.

SPF *Litopenaeus vannamei*, 2.5-gr avg. wt., were acclimated to 25 ppt. artificial seawater. Once acclimated, they were distributed in four pairs of tanks (25/tank). Each pair of tanks had one infected tank by injection and one non-infected. Water effluent from the infected tank was pumped and to the non-infected, and returned to the infected tank by gravity. Two pairs of tanks had UV light (G15T8) to irradiate the water effluent before pass to the non-infected tank. The other two pairs of tanks (control group) had no UV light irradiation to the water effluent. Moribund and dead shrimp were collected and frozen to determine if infected with WSSV by using PCR.

After 5 weeks, the tanks with water infected with WSSV and treated with UV did not have any mortality. The tanks exposed to water infected and not treated with UV resulted in infected and dead shrimp. Dead shrimp were counted and replaced.

This study demonstrated that it is possible to eliminate the viral infectivity effects of the WSSV by treating the water with UV. Further studies on flow rate and UV exposure time will be done to determine the UV lethal doses required to inactivate WSSV.