

Development of an efficient nanoparticles based immuno-diagnostic method for detection of White Spot Syndrome Virus in shrimp

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Early detection and routine screening under field conditions are vital. Although PCR-based detection of the causative viral nucleic acid has many advantages, including sensitivity, the need for sophisticated equipment and technical expertise rule out in its routine usage. In contrast, protein based immuno-detection methods, which are easier to perform even by laymen, lacks of sensitivity because of inadequate signal amplification. In present study a sensitive immuno detection method has been developed by coupling gold nanoparticles to alkaline phosphates-conjugated secondary antibodies which in turn recognize mouse antibodies raised against WSSV. We successfully enhanced by 32-fold (over the conventional method) the sensitivity of detection in an immuno-dot blot assay. The approach that we describe is a prototype for the development of simple and inexpensive diagnostic kit that will allow for the routine screening of WSS in shrimp farms.