

Method Comparisons

The performance of the manual ELISA method and DS2 automation method was compared to establish the performance of DS2 analysis. The validation design outlined in accuracy and precision studies was adopted for this purpose. A variation of < 20 % was established as good correlation between the manual method and DS2 automation method. The variation was calculated as the difference between mean spike recovery between the methods compared to the manual method.

The results indicate a good correlation between the established manual method of ELISA and DS2 automation method. The results from correlation are summarized in Table 3.

Table 3. Table 3 demonstrates a good correlation between manual ELISA and DS2 methods.

Analyte	Variation	Target
AOZ	4.26%	<20%
AMTZ	10.98%	<20%
SEM	4.50%	<20%
AHD	0.16%	<20%
CAP	5.96%	<20%

Sample Variability/Matrix Interference

Two matrix types: gulf coast (wild caught in USA) and *Litopenaeus vannamei* (commercially farmed in India and APAC regions) were used for testing to check for matrix variability and interference. Five replicates of shrimp samples from the two sources were processed and sample extraction was done following the 5-in-1 method. The sample extracts were analyzed by DS2 automation method.

The results showed no significant difference (<10%) between the two sources of shrimp samples proving that there is no effect of matrix on the method. The results are summarized in Table 4.

Table 4. Table 4 summarizes the results of sample variability testing.

Analyte	Vannemei Shrimp (Farm Raised)	Gulf Shrimp (Wild Caught)	Delta %	
Average Spike (PPB)	AOZ	0.609	0.552	5.7
	AMTZ	0.363	0.308	5.2
	AHD	0.321	0.309	1.2
	SEM	0.410	0.408	1.7
	CAP	0.266	0.210	5.6
Average Blank (PPB)	AOZ	0.030	0.023	0.71
	AMTZ	0.015	0.025	1.01
	AHD	0.064	0.064	3.2
	SEM	0.057	0.077	2.3
	CAP	0.082	0.084	1.7

Conclusion

Materials and Methods

MaxSignal HTS Nitrofurans and Chloramphenicol ELISA Kits assays are designed and developed specifically for the aquaculture industry, delivering a simple, simultaneous, 5-in-1 sample preparation method for AOZ, AMTZ, SEM and AHD Nitrofurans as well as Chloramphenicol. This speeds testing and reduces cross-contamination risks while requiring less reagents and hands-on technician time.

When used with the DS2 Automated Laboratory ELISA, analysis is then automated and provides highly accurate and consistent results that enable faster, more informed decisions for incoming seafood lots. Finally, the integrated bar-code scanner provides excellent sample traceability and data can be easily linked to LIMS for seamless results recording and sharing.