Confectionery

After many widely publicised and damaging outbreaks related to confectionary products such as chocolate, peanut butter and infant formula an acknowledgement has been formed in the microbiological food safety community that low moisture food groups are not as safe as once was thought. Effective HACCP programmes can go a long way to help food manufacturers avoid the risk of contamination from, primarily Salmonella, but ensuring that finished goods reach the shelves in the safest possible manner has led to the need for robust, proven and reliable testing methods.

Solus One Salmonella

Of specific importance when assessing the safety of confectionary, as mentioned, is the presence of Salmonella species. With that in mind Solus has gone through a rigorous development, verification and validation process spanning several years in order to achieve the best performing most reliable workflow possible.

As well as the provision of high quality ISO compliant standard buffered peptone water we have developed a Modified Buffered Peptone Water (mBPW) formulation which contains a unique blend of components to neutralise the inhibitory compounds found in herbs, spices and cocoa products. When used in conjunction with our Solus One Supplement it ensures excellent growth and recovery of Salmonella from these difficult sample types, allowing results to be achieved in one day with only one enrichment step.
**One-step enrichment assays**

Currently pathogen testing in food is performed predominantly via an approved (ISO,FDA-BAM) culture based method which has for a long time been considered the ‘gold standard’. Shortened culture methods have entered the market and PCR based technology has also been widely adopted by many markets both of which require validation against a reference method (ISO,FDA-BAM). The cost of PCR based methods is high and can be prohibitively high for many laboratories. Shortened media methods have not been extensively adopted due in part to cost and also trust of the reliability of the method in some cases. ELISA based methods offer an alternative to both, giving faster time to result than traditional culture media and at a significantly lower cost than PCR.

Our Solus One assays, are highly efficient for the next day detection of Salmonella, Listeria sp and E.coli 0157. Solus One assays use polyclonal antibodies, developed and purified in house using advanced affinity purification, to capture a wide range of target strains and monoclonal detection antibodies to provide the required specificity. By optimising each aspect of a regular ELISA, we have been able to make a product that will give you reliable results in one day with only one enrichment step. To compliment the assays Solus provides enrichment media and supplements which were specifically developed for optimal performance of the workflow.

**Advantages of Elisa**

**Time to Results**

One of the key advantages of the new Solus One Salmonella complete workflow is results in 24 hours for environmental and food samples. Allowing those negative results to be released quickly to the manufacturer or start the supply process. Confirmation of presumptive positives can be achieved up to three days earlier from Solus enriched samples compared to traditional culture methods and up to one day earlier than PCR protocols that require a sub culture step prior to confirmation, saving time in the ability to identify contaminated product.

**Automation**

For high-throughput processing. All Solus assays can be processed using the Dynex DS2 instrument with a simple workflow (Below) that can improve throughput and efficiency. With the option of manual or automated processing, labs have the flexibility to run any number of samples with maximum efficiency. Enriched samples can also be stored at 4° C for up to 72 hours prior to testing, allowing smaller labs the opportunity to batch test.

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**Figure 1: Solus One Salmonella**
Cost Effectiveness

Especially relevant for high throughput (large sample volume) test labs:

- Storage space is typically at a premium for the majority of micro labs and the Solus Kits contains all reagents for 96 or 480 tests in a single small box which requires less refrigerator space than equivalent prepared culture media plates and broths as well as molecular consumables for the same sample numbers.

- Reduced enrichment media requirement: Reduced dilution requirement for some high toxicity matrices (e.g., cinnamon) compared to BAM protocols

- Due to the minimal consumables required when compared to other methods, waste is reduced considerably.

- The assays were developed with simplicity in mind and have fewer manual sample processing steps than culture or molecular methods, meaning there are fewer opportunities for error.

- Support from qualified engineers is available from Solus on the same day online and typically within 24 hours for onsite support reducing the risk of any significant downtime.

Conclusion

Solus One Salmonella delivers best-in-class performance - this pathogen testing system from PerkinElmer offers a high-quality, robust, cost-effective, and rapid method with time to results significantly faster than culture methods. With a sensitivity equivalent to or better than PCR, acute selectivity and specificity to provide reliable results. ONE assay can be used to detect a wide range of tough to detect matrices that are seen in confectionary items to raw poultry and meats. With only ONE enrichment step, combined with high throughput automated options that can be managed by ONE technician. Our Solus One Salmonella assay is here to help and make working simpler.