Comparing the VIDAS-*Salmonella* (SLM) and VIDAS-*Salmonella* Easy (SLM Easy) Methods using Method-Matrix Extension Validation Data

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Abstract

The VIDAS *Salmonella* detection assay is a semi-automated enzyme-linked immune-fluorescent assay that is frequently favored within the Office of Regulatory Affairs' testing laboratories for identifying *Salmonella enterica* in regulatory samples. The assay is used with one of two selective enrichment procedures. AOAC International Official Method of Analysis (OMA) 2004.03 (VIDAS-SLM) specifies a dual selective enrichment using Rappaport-Vassiliadis (RV) and Tetrathionate (TT) broths. AOAC International OMA 2011.03 (VIDAS-SLM Easy) specifies the use of proprietary *Salmonella* Xpress 2 (SX2) broth. The validation status for each method has been established primarily by method-matrix extension for most food products/matrices analyzed by the ORA field laboratories. This review compares the validation status of both methods for food product categories for which method-matrix extension data are available; as the use of validated methods is mandated by ISO 17025 accreditation. To be included in this study, a food product/matrix category must include data for both VIDAS *Salmonella* detection methods. There were 109 food products/matrices with the validation status established for AOAC OMA 2004.03; of those, 66 can be considered validated using the method-matrix extension criteria. Similarly, there were 106 food products/matrices with the validation status established for AOAC OMA 2011.03; of those, 65 can be considered validated using the method-matrix extension criteria. Equally important, there were 43 food products/matrices that should be considered inappropriate for analysis by method 2004.03 and 41 food products/matrices that should be considered inappropriate for analysis by method 2011.03. The VIDAS *Salmonella* detection assay is a useful method for screening FDA regulated food products for the presence of *Salmonella enterica*. This method is favored over the FDA BAM reference method for *Salmonella* detection and recovery since it reduces the time required to achieve presumptive positive results and

since it identifies those samples most likely to be lacking the target pathogen allowing time, resources, and pathogen recovery efforts to be focused on those samples with a greater likelihood of *Salmonella* contamination. Periodic review of the spiked-matrix detection results for these two methods (AOAC OMA 2004.03 and 2011.03) is necessary to ensure that each is being appropriately used (i.e. each matrix is validated for each method) for analysis of regulated food products/matrices.

1. Introduction

Salmonella enterica is a foodborne pathogen that is frequently targeted in U.S. Food and Drug Administration (FDA) Foods Programs. The reference method for detecting and recovering *S*. *enterica* is detailed in the FDA's Bacteriological Analytical Manual (Andrews et al., 2019). Analysis typically begins with a 25 g test portion diluted (1:10) in pre-enrichment broth; lactose broth is frequently used but others may be recommended depending on the product being tested. The diluted sample, which is sometimes blended, is then incubated for approximately 24 h at 35 °C. At the end of the pre-enrichment incubation, aliquots of 0.1 and 1 mL are transferred to 10 mL of Rappaport-Vassiliadis (RV) and 10 mL of Tetrathionate (TT) broths, respectively. RV medium is incubated for 24 h at 42 °C. TT medium is incubated for 24 h at either 43 or 35 °C depending on whether the food is suspected of having a high or low microbial load, respectively. The incubation time and temperature tolerances are described thoroughly in the FDA BAM. Upon completion of the selective enrichment period, a loopful of culture from each medium is struck for isolation onto bismuth sulfite (BS), xylose-lysine-desoxycholate (XLD), and Hektoen enteric (HE) selective/differential agars. The incubation times, temperatures, and their tolerances are fully detailed in the FDA BAM. Briefly, XLD and HE agar plates are checked at 24 h for the presence of typical and atypical *S*. *enterica* colonies; BS agar plates are checked at 24 and 48 h. Descriptions of typical and atypical *S. enterica* colonies on these three media are described in the FDA BAM. Because of the multiple incubations used in this procedure, it can require 3-4 days to achieve a "cannot rule out" (i.e. presumptive positive) result. A presumptive-positive result is indicated by the presence of either typical or atypical *Salmonella* colonies on differential media.

The use of rapid microbiological diagnostic assays for regulatory use is encouraged because these assays often reduce the hands-on analytical time, reduce the time to achieve presumptive-positive results, and help eliminate those samples that are most likely devoid of targeted pathogens so that efforts can be concentrated on those samples which are more likely to be contaminated. The VIDAS-SLM is an enzyme-linked immuno-fluorescence (ELFA) diagnostic assay frequently used by the Office of Regulatory Affairs' field laboratories for the detection of *S*. *enterica* in food enrichments. The VIDAS-SLM assay has undergone several multiple-laboratory validations resulting in "Official Method of Analysis" (OMA) status by the AOAC International. AOAC OMA 2004.03 (McMahon et al., 2004) is a VIDAS-SLM detection protocol that uses a similar selective enrichment procedure to the FDA BAM *Salmonella* recovery method (Andrews et al., 2019). The method is initiated with a 18-24 h pre-enrichment using media that is specific to the product type as described in the FDA BAM. After the pre-enrichment incubation, aliquots are transferred to RV and TT media identical to the FDA BAM method. RV and TT broths are then incubated between 41-42 °C for 6-8 h for low microbial load foods or 18-24 h for high microbial load foods. Aliquots from the RV and TT selective enrichments are then transferred to individual tubes containing M-broth. The inoculated M-broth is incubated at 41-42 °C for 6-8 h (for high microbial load foods) or for 18-24 h (for low microbial load foods). Aliquots from the M-broth are then pooled, processed and analyzed on the VIDAS diagnostic assay system.

In addition to AOAC OMA 2004.03, a second OMA (2011.03 or SLM Easy) has recently been developed (Crowley et al., 2011) and has been incorporated by some ORA field laboratories for screening samples for the presence of *S*. *enterica*. The VIDAS-SLM Easy assay differs from method 2004.03 primarily in the way that selective enrichment is performed. The VIDAS-SLM Easy method uses the same matrix dependent pre-enrichment step as the 2004.03 method. Following pre-enrichment, the VIDAS-SLM Easy assay utilizes a single selective enrichment formulation, SX2 broth (*Salmonella* Xpress 2), instead of RV and TT broths. Briefly, 0.1 mL of the pre-enrichment is transferred into 10 mL of SX2 broth and is incubated at 42 °C for 22-26 h. The VIDAS-SLM Easy method also eliminates the M-broth transfer and incubation prior to analysis so aliquots directly from the SX2 broth are processed and analyzed on the VIDAS diagnostic assay system.

Methods used by the ORA field laboratories must be validated for each specific food matrix to ensure that they meet the highest analytical standards possible (*i.e*. neither high false positive nor false negative results). This criterion applies even to diagnostic assays whose performance have been fully validated in a multi-laboratory study which was monitored and evaluated by an independent accrediting organization (*e.g*. AOAC International). Microbiological performance studies are not all inclusive and are conducted using a limited set of food matrices. The original multi-laboratory validation study for AOAC OMA 2004.03 included milk chocolate, dried whole egg, nonfat dried milk, soy flour, raw turkey, raw pork, raw peeled shrimp, and lactic casein (McMahon et al., 2004). Additionally, a single laboratory validation study, conducted prior to the multi-laboratory study, included coconut, cheese powder, pecans, yeast, roast beef, raw cod, cake mix, peanut butter, dry pasta, black pepper, gelatin, cauliflower, orange juice, and spent irrigation water (McMahon et al., 2004). The original multi-laboratory validation study for AOAC OMA 2011.03 included liquid egg, vanilla ice cream, spinach, raw shrimp, peanut butter, and deli-style turkey (Crowley et al., 2011). Additionally, a single laboratory validation study, conducted prior to the multi-laboratory study, included roast beef, raw ground pork, pork sausage, raw chicken, dry pet food, moist pet food, whole milk, raw cod, spent irrigation water, pecans, dry pasta, cake mix, black pepper, nonfat dried milk, dried egg yolk, dark chocolate, cantaloupe, and orange juice (Crowley et al., 2011)

Even when a method is validated by an accrediting organization, the claim is limited to only those matrices included in study and there is no “validated for all foods” assertation. Due to wide variety of foods that fall under the regulatory authority of the FDA, it is impractical to conduct a full laboratory validation study on each matrix encountered. Nevertheless, the analytical method selected must still be shown to be fit for use when used for regulatory purposes. Method-matrix extension is a compromise between performing a full laboratory validation study and using a method which has not received any performance testing for a specific matrix. When analyzing a matrix with no established validation status, a spiked-matrix control is simultaneously performed; if the spike is detected then the analysis of the sample is deemed valid. The results from the spiked-matrix control are recorded in the ORA Field Accomplishments and Compliance Tracking System (FACTS) until a requisite number of observations are reached at which time a final determination is made as to the validation status of the matrix. Currently

there are two VIDAS *Salmonella* detection assays which are routinely used for analyzing regulatory test samples. A comparison of the spiked-matrix *Salmonella* detection results is needed in order to establish which method is more appropriate for specific matrices and to establish which method(s) is(are) not suitable for use with specific matrices. This work is intended to provide a comparison of spike detection results collected by the FDA field laboratories and recorded in FACTS for both VIDAS-SLM methods (2004.03 and 2011.03).

2. Methods

2.1 Data Retrieval

The dataset used for evaluating the VIDAS SLM method (AOAC OMA 2004.03) included spike detection results from all accomplishing ORA laboratories from May 01, 2007 through December 31, 2019. The dataset used for evaluating the VIDAS SLM Easy method (AOAC OMA 2011.03) included spiked detection results from all accomplishing ORA laboratories from January 01, 2011 through December 31, 2019. Results were obtained from FACTS using the ORA Reporting, Analysis, and Decisions Support System (ORADSS SAP Business Objects Business Intelligence Suite 4.0 Feature Pack 3). The retrieved data consisted of: sample number, accomplishing laboratory, sampling district, PAC code, PAF code, completion date, laboratory class, product code, product description, method source code, method code, sub-sample designation, rapid method results, conventional methods results, spike results, genus/species, selective agar results, selective agar used, kit compare remarks, description text, and product label.

2.2 Data Selection

If the food product/matrix identity could not be reasonably established by a combination of the product description and product code the observation was not included in the analysis. The FACTS entry must have indicated that a spiking level between 1-30 CFU/25 g sample was used. If the information was missing or if the spiking level was outside of this range the entry was not included. If there were multiple entries with the same sample number and the same spike detection result, then only one was included. If there were multiple entries with the same sample number and differing spike detection result, then all

entries were omitted. If the FACTS entry indicated that the sample subsequently tested positive for *Salmonella*, then the entry was omitted since an accurate estimate of the spiking level was not possible.

2.3 Data Analysis

Using the product description and product code, matrices were grouped by the narrowest classification reasonable. Sources of guidance consulted when forming product groupings included AOAC International Presidential Task Force on Best Practices for Microbiological Methodology Appendix B available here https://www.fda.gov/food/laboratory-methods-food/best-practices-microbiological-methodology (last accessed 02/26/2020) and the FDA Foods Program Regulatory Science Steering Committee's (RSSC) "Guidelines for the Validation of Analytical Methods for the Detection of Microbial Pathogens in Foods", 3rd edition available here https://www.fda.gov/science-research/field-science-and-laboratories/method-validation-guidelines (last accessed 02/26/2020). Once grouped, all product categories were evaluated based on the above guidance using the following criteria; 1) seven to 19 spike detection entries with no reported failures (i.e. negative results) or 2) 20 or more spike detection entries with <5% failure rate. Products categories meeting either one of these criteria were considered "validated" matrices. Product categories failing both criteria were labeled "unsuitable" to indicate that the data suggest a potential method/matrix incompatibility. The label "pending" was used for those product categories failing criterion 1 but whose validation status could not be determined based on criterion 2 due to too few observations (i.e. seven to 19 spike detection entries with a single spike detection failure). Only those product categories for which there were data for both analytical methods are included in this comparison study.

3. Results and Discussion

3.1 Validation Status Established for both VIDAS Salmonella Methods

There were 78 product categories with the requisite number of spike detection results to establish the validation status for both VIDAS *Salmonella* detection methods (Table 1). Using the guidance from the FDA RSCC, the VIDAS-SLM method can be considered validated for 50 of these matrices and unsuitable for

use for the remaining 28. Similarly, the VIDAS-SLM Easy can be considered validated for 49 of these matrices and unsuitable for use for the remaining 29. There are 38 product categories where both methods can be considered validated (e.g. blueberries) and 17 categories where both methods are unsuitable for use (e.g. dried garlic). There are 12 instances in which method 2004.03 can be considered validated while method 2011.03 is unsuitable for use (e.g. guacamole). Likewise, there are 11 instances in which method 2011.03 can be considered validated while method 2004.03 is unsuitable for use (e.g. fresh/frozen fish). When both methods are considered validated for the same matrix, then selection of the method can be a simple matter of preference; however, when one method has been deemed unsuitable for use then either the other (validated) method or the FDA BAM reference method should be used for analysis. Continued use of a method deemed unsuitable for a specific matrix is inappropriate despite the inclusion of spiked-matrix controls.

3.2 Validation Status Established for only one VIDAS Salmonella Method

There are 59 product categories for which the validation status is known for one of the VIDAS *Salmonella* detection methods but is pending for the other method (Table 2). Method 2004.03 can be considered validated for 16 matrices, unsuitable for 15 matrices, and has a pending status for an additional 28 matrices. Likewise, Method 2011.03 can be considered validated for 16 matrices, unsuitable for 12 matrices, and has a pending status for an additional 31 matrices. When one method has been determined unsuitable for use then either the other VIDAS *Salmonella* detection method or the FDA BAM reference method should be used for analysis. If the method validation status is pending, then continued use of that method is appropriate even if the other method is validated so that spike matrix results can continue to be collected and the validation status can eventually be established. For instance, Method 2011.03 can still be used (with inclusion of a spiked matrix control) for analysis of smoked fish even though Method 2004.03 is already validated; once the requisite number of observations are reached, a determination of the validation status should be made.

3.3 Validation Status Pending for both Methods

There are 17 food product categories where the validation status is pending for both VIDAS *Salmonella* detection methods (Table 3). A pending classification means that either the number of spike detection observations is less than seven or is between seven and 19 with a single failure. Additional spiked detection data is required to resolve their validation status. Use of either method, with inclusion of a spiked matrix control, is appropriate at this stage in order to collect the necessary spike recovery data needed to complete the analysis and resolve the validation status.

3.4 Difficulties with Matrix Extension Validation

3.4.1 Food Product/Matrix Categorization

There are no firm rules as to how to group food products for method-matrix extension validation; however, it is intuitive that the more related two matrices are the likelier they will perform similarly under the same test conditions. The simpler the matrix the easier it is to classify. As matrices become more complex more objectivity is required to reach a final product classification; this is particularly true since classification is being performed based on written descriptions of the products and not on the products themselves. Although there is some guidance in establishing food product categories (as referenced in Section 2.3), if the classifications are too specific then ORA is left with hundreds of orphan categories with too few observations to be of any real value and with very few products for which the validation status is ever established. On the other hand, if the classifications are too broad then matrix interferences that are associated with subtle differences between products (i.e. raw versus thermally processed) may go unnoticed. This can result in either matrices being inappropriately validated (i.e. a detection interference is masked) or matrices being unnecessarily deemed unsuitable (i.e. detection failures for a specific matrix results in failure of a similar matrix because they were grouped together). Because it may be of interest to the end user of the assay, itemizations of some of the more popular broad product categories are provided as supplemental tables.

3.4.2 Validation Study Root Matrices

Method-matrix extension is not an absolute substitute for laboratory validation studies and the products that are validated in this manner should be rooted to products that were included in a controlled

laboratory validation study. In other words, there must be some level of similarity between the matrix under consideration and a matrix included in the initial validation studies. The AOAC category and class, root matrix, and validation study level of the root matrix are shown in Tables 4 and 5 for the product categories validated, using method-matrix extension, for AOAC OMAs 2004.03 and 2011.03, respectively. The root matrix must have been included in the original validation study and must be in the same AOAC matrix class as the food product under consideration. This criterion was based on the guidance provided by the AOAC International Presidential Task Force on Best Practices for Microbiological Methodology: Method-Matrix Extension Working Group (MEWG) (see reference in Section 2.3). The AOAC International MEWG uses the following categorization scheme: category, class, group, sub-group. The AOAC International MEWG guidance stipulates that extending a matrix within the same class is less predictable than extending a matrix within the same sub-class (i.e. group or sub-group) but is more predictable than extending a matrix to a different class within the same category. A formal validation study is needed when a matrix has not been validated by laboratory study and does not fall within the same class as a matrix that has previously been validated by laboratory study. A less rigorous study (i.e. method-matrix extension) will suffice when the new matrix falls within the same class as a previously validated matrix. This guidance is more restrictive than the guidance issued by the FDA Foods Program RSSC (see reference in Section *2.3*). The RSSC suggests that all that is needed to justify matrix-method extension is that the two matrices belong to the same category of foods. This particular approach is overly broad and results in the majority of matrices encountered by the ORA field laboratories being eligible for method-matrix extension validation without the need to ever perform a full laboratory validation study. Additionally, AOAC International has included a category for miscellaneous foods that do not fit neatly in any of the other 7 categories. In the original validation study for method 2004.03 (McMahon et al., 2004), the miscellaneous category was represented by cake mix (Category 5. Miscellaneous Foods, Class A. Cereals and Grains, Group A1. Flours and Dry Mixes). Mayonnaise (Category 5. Miscellaneous Foods, Class D. Dressings, Condiments, and Marinades, Group D1. Does not require refrigeration) is another matrix that would be included in the miscellaneous category. RSSC guidance suggests that mayonnaise can be validated by method-matrix extension because cake mix was validated by laboratory study. Use of a lax association between root and test matrices could result in some matrices receiving a less rigorous validation when

perhaps greater granularity could reveal matrix-specific issues present in some but not other similar matrices. A more thorough evaluation could be needed to reveal those issues.

There are 109 product groupings with an established validation status for the AOAC OMA 2004.03 method. Of these, four are Category 1 foods (meat and poultry), 44 are Category 2 foods (fruits and vegetables), seven are Category 3 foods (dairy products), 10 are Category 5 foods (miscellaneous foods), nine are Category 6 foods (seafood), eight are Category 7 foods (animal feed), and 13 are Category 8 foods (spices) (Figure 1). There are no food products in Category 4 (egg products) and there are 14 food products that do not adequately fit into any of the eight AOAC International food product categories. Using AOAC International MEWG guidance (referenced in Section *2.3*), there are 73 product groupings with a Class-level root matrix included in the initial validation study (McMahon et al., 2004) and 36 product categories that are not represented in that study. Alternatively, using the FDA Foods Program RSSC guidance (referenced in Section *2.3*), there are 96 product categories rooted to the initial validation study at the Category level and 13 matrices that are not represented in that study (McMahon et al., 2004).

There are 106 product groupings for the VIDAS-SLM Easy method (2011.03) (Table 5) and they are distributed among the eight AOAC International Matrix Categories similarly to those for the VIDAS-SLM method (2004.03) (Figure 2 vs. Figure 1, respectively). Four product groupings are Category 1 foods, 41 are Category 2 foods, 5 are Category 3 foods, 10 are Category 5 foods, seven are Category 6 foods, six are Category 7 foods, and 21 are Category 8 foods. There are 12 groupings that cannot be adequately placed within an AOAC matrix category and no products are in Category 4. Using AOAC International MEWG guidance (referenced in Section 2.3), there are 64 product groupings with a Class-level root matrix included in the initial validation study (Crowley et al., 2011) and 42 product categories that are not represented in that study. Alternatively, using the FDA Foods Program RSSC guidance (referenced in Section *2.3*), there are 94 product categories rooted to the initial validation study at the Category level and 12 matrices that are not represented in that study (Crowley et al., 2011).

The justification for being able to validate a regulated product via an abridged process such as method-matrix extension is that the product being validated is similar to a product that was included in a full laboratory performance study. The premise is the greater the similarity between two matrices the

more likely they will behave comparably when analyzed by the same test method. Despite this prerequisite, the relatedness of the matrices included in the original full laboratory validation studies to those being validated using method-matrix extension has received little attention.

3.5 Interpretation of Spike Detection Results

If a spike detection failure occurs during the analysis of an FDA regulated commodity, for which the validation status is being determined by method-matrix extension, then the entire analysis (both the spike and analytical sample) is invalid (See FDA Foods Program RSSC guidance referenced in Section 2.3). The RSSC guidance further stipulates that "the sample must be analyzed using the conventional culture procedure" (Section 5.1.1. of Guidelines for the Validation of Microbiological Methods for the FDA Foods Program, 3rd ed. See reference in Section 2.3). . Careful interpretation of this language should be used to ensure that the intent of the method-matrix extension is not lost. The purpose of method-matrix extension is the same as laboratory validation; they both aim to compare the performance of an alternative method (i.e. VIDAS *Salmonella* detection method) to a reference method (i.e. FDA BAM method). So, the RSCC guidance should be interpreted as "the sample must be analyzed using the FDA BAM reference method". The phrase "conventional culture procedure" could be mistakenly interpreted as plating for isolation from whatever selective enrichment broth is convenient, such as SX2 broth if following AOAC OMA 2011.03. If the spike detection fails when following this method, it is not appropriate to simply streak for isolation from SX2 broth. First, SX2 broth is not part of the FDA BAM reference method for detection of *Salmonella*. Second, streaking from SX2 broth is still a continuation of the method (2011.03) that was just invalidated by the spike failure. In this situation the sample would need to be reanalyzed, beginning with the pre-enrichment step, following the FDA BAM method.

Unlike the VIDAS-SLM Easy method, the VIDAS-SLM method shares the same enrichment procedure and media with the FDA BAM reference method. Depending on the incubation times used by the performing analyst, it is possible that the FDA BAM reference and VIDAS-SLM methods remain congruent up until and often through the analytical detection step used for the later method. The FDA

BAM reference method for *Salmonella* detection specifies a selective enrichment time of 22-26 hours using RV and TT broths (Andrews et al., 2019). The AOAC OMA 2004.03 method specifies a selective enrichment time of 18-24 hours using RV and TT broths (McMahon et al., 2004) followed by 6-8 hours non-selective enrichment using M-broth. If the procedure is performed using an 18 hour selective enrichment and a six hour non-selective enrichment then that would allow an additional two hours to perform the analytical detection step on the VIDAS instrument and still be within the timeframe of the FDA BAM method should the RV and TT broths require streak-plate analysis due to spike detection failure and resulting in the need to analyze the samples by the reference method. This is feasible for many of the sample analyses performed and for others the delay from selective enrichment to plating would be minimal. The performing analyst would have to continue the RV and TT broths incubation once the transfer to M-broth is made. It should be noted that there is a slight discrepancy between the TT broth incubation temperatures; the FDA BAM method specifies a temperature of 43 ± 0.2 °C while the AOAC OMA 2004.03 specifies 41-42 °C. The effects of the approximate 1 °C difference on detection of *Salmonella* are unclear.

3.6 Study Summary

Two VIDAS *Salmonella* detection methods (AOAC OMA 2004.03 and 2011.03) were compared using the spiked-matrix results collected by the ORA field laboratories and captured in FACTS. Both methods were comparable in the number of food products/matrices for which they could be considered validated as well as the number of food products/matrices for which they should be considered inappropriate. No one method could be established as the better method for overall general use by the ORA field laboratories and like many microbiological detection methods their performance was often matrix dependent. For some matrices, both methods can be considered validated and the selection of the method (e.g. asparagus in Table 1) can be based simply on preference. For other matrices, one of the two methods could be considered validated while the other found inappropriate (e.g broccoli in Table 1) and analyses should be restricted to the appropriate method. And still for other matrices, both methods could be considered inappropriate and analyses should be restricted to the FDA BAM reference method (e.g. gelatin in Table 1). The inclusion of a spiked-matrix control does not negate an “inappropriate” method-

matrix validation classification and the method should be discontinued for those matrices. It is still appropriate to continue to collect spiked-matrix results for those food products/matrices which are considered pending and require additional data to resolve their validation status.

4. References

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Figure 1. Relative percentages of established product grouping using method-matrix extension data for the VIDAS-SLM method and sorted into AOAC food categories.

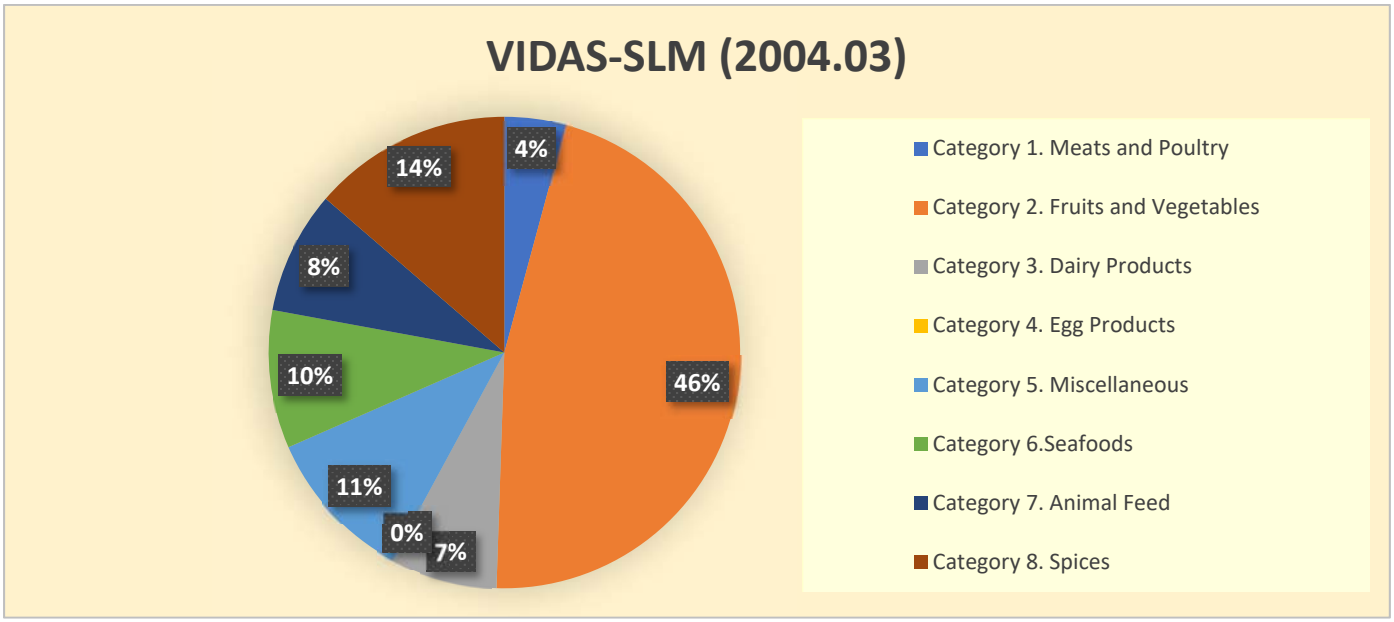

Figure 2. Relative percentages of established product grouping using method-matrix extension data for the VIDAS-SLM Easy method and sorted into AOAC food categories.

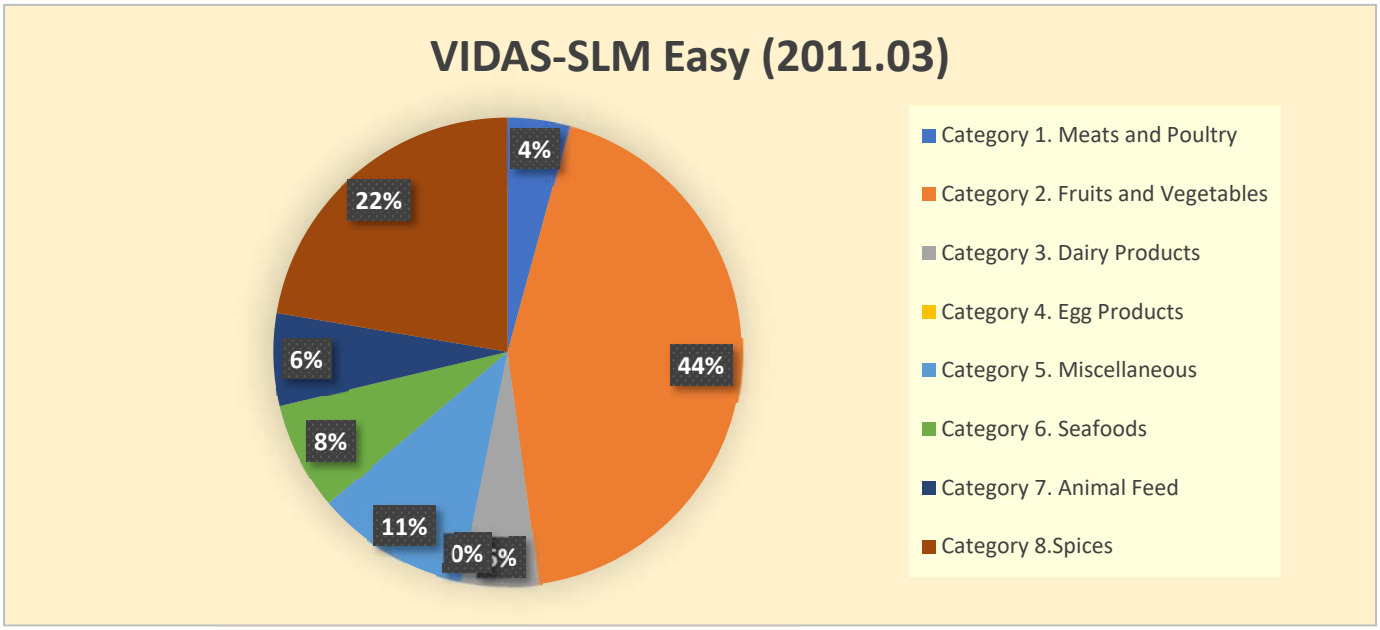

Table 1. Food products/matrices for which the validation status is resolved for both VIDAS™ *Salmonella* detection methods (AOAC OMA 2004.03 and 2011.03).

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	*2004.03*	*2011.03*	*2004.03*	*2011.03*	*2004.03*	*2011.03*	*2004.03*	*2011.03*	*2004.03*	*2011.03*
Asparagus	28	14	28	14	0	0	100	100	Validated	Validated
Avocado	137	40	133	40	4	0	97	100	Validated	Validated
Banana, Dried	13	26	13	26	0	0	100	100	Validated	Validated
Blueberries	15	15	15	15	0	0	100	100	Validated	Validated
Broccoli	26	14	23	14	3	0	88	100	Unsuitable	Validated
Brussels Sprouts	26	9	26	9	0	0	100	100	Validated	Validated
Cactus, Fresh	33	13	31	10	2	3	94	77	Unsuitable	Unsuitable
Cauliflower	9	7	7	7	2	0	78	100	Unsuitable	Validated
Cheese	71	87	53	79	18	8	75	91	Unsuitable	Unsuitable
Chili Pepper/Powder (Spice)	119	175	105	164	14	11	88	94	Unsuitable	Unsuitable
Chocolate (Syrup/Chips/Bars/Powder)	27	30	26	29	1	1	96	97	Validated	Validated
Cilantro	24	21	23	21	1	0	96	100	Validated	Validated
Cinnamon	24	33	22	29	2	4	92	88	Unsuitable	Unsuitable
Cloves	13	16	13	16	0	0	100	100	Validated	Validated
Coconut (Flaked/Grated/Sliced)	46	106	43	83	3	23	93	78	Unsuitable	Unsuitable
Coconut Powder	9	20	9	17	0	3	100	85	Validated	Unsuitable
Coriander	18	52	18	50	0	2	100	96	Validated	Validated
Crustaceans	98	55	98	54	0	1	100	98	Validated	Validated
Cucumber	493	61	486	60	7	1	99	98	Validated	Validated
Dietary Supplements	293	106	228	93	65	13	78	88	Unsuitable	Unsuitable
Fennel	11	17	11	17	0	0	100	100	Validated	Validated
Fenugreek	17	12	17	10	0	2	100	83	Validated	Unsuitable
Fish, Fresh or Frozen	76	122	69	120	7	2	91	98	Unsuitable	Validated
Flour, Cereal/Pseudo-cereal Grain	50	13	48	13	2	0	96	100	Validated	Validated
Garlic, Dried	30	15	21	9	9	6	70	60	Unsuitable	Unsuitable
Gelatin	6	6	4	4	2	2	67	67	Unsuitable	Unsuitable

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	*2004.03*	*2011.03*	*2004.03*	*2011.03*	*2004.03*	*2011.03*	*2004.03*	*2011.03*	*2004.03*	*2011.03*
Ginger, Dried	10	27	10	23	0	4	100	85	Validated	Unsuitable
Green Beans	51	25	47	22	4	3	92	88	Unsuitable	Unsuitable
Greens, Leafy	164	84	161	79	3	5	98	94	Validated	Unsuitable
Guacamole	23	220	23	197	0	23	100	90	Validated	Unsuitable
Indian Snack Food, All in One	7	8	7	8	0	0	100	100	Validated	Validated
Indian Snack Food, Chana	12	17	12	17	0	0	100	100	Validated	Validated
Indian Snack Food, Halva	16	19	16	19	0	0	100	100	Validated	Validated
Indian Snack Food, Khatta Meetha	14	21	11	21	3	0	79	100	Unsuitable	Validated
Infant Formula	10	8	10	8	0	0	100	100	Validated	Validated
Mangos	138	33	135	32	3	1	98	97	Validated	Validated
Masala/Curry/Spice Mix	404	416	322	345	82	71	80	83	Unsuitable	Unsuitable
Melon	33	24	32	23	1	1	97	96	Validated	Validated
Microgreens	116	55	108	52	8	3	93	95	Unsuitable	Validated
Milk/Dairy Powder, Dry	8	19	8	17	0	2	100	89	Validated	Unsuitable
Milk Replacer, Medicated	13	5	10	3	3	2	77	60	Unsuitable	Unsuitable
Mole	33	7	33	7	0	0	100	100	Validated	Validated
Mollusks, Bivalve	53	26	52	25	1	1	98	96	Validated	Validated
Mollusks, Cephalopods	65	51	63	50	2	1	97	98	Validated	Validated
Nuts (Tree Nuts)	140	117	136	115	4	2	97	98	Validated	Validated
Onion, Scallions	14	14	11	14	3	0	79	100	Unsuitable	Validated
Oregano	19	14	18	12	1	2	95	86	Validated	Unsuitable
Papayas	54	20	52	17	2	3	96	85	Validated	Unsuitable
Paprika	22	33	21	31	1	2	95	94	Validated	Unsuitable
Pasta/Noodles (Wheat)	78	49	73	48	5	1	94	98	Unsuitable	Validated
Pea/Pea Protein	25	20	25	20	0	0	100	100	Validated	Validated
Peanuts	7	23	7	23	0	0	100	100	Validated	Validated
Peppers	1148	166	1106	150	42	16	96	90	Validated	Unsuitable

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	*2004.03*	*2011.03*	*2004.03*	*2011.03*	*2004.03*	*2011.03*	*2004.03*	*2011.03*	*2004.03*	*2011.03*
Pet Food, Dry	190	87	183	84	7	3	96	97	Validated	Validated
Pet Food, Moist	33	62	31	62	2	0	94	100	Unsuitable	Validated
Pet Food, Raw	16	13	14	11	2	2	88	85	Unsuitable	Unsuitable
Pet Treats, Bones	26	19	26	14	0	5	100	74	Validated	Unsuitable
Pet Treats, Jerky Style	37	26	36	26	1	0	97	100	Validated	Validated
Pet Treats, Rawhide	31	7	26	5	5	2	84	71	Unsuitable	Unsuitable
Potato Chips	27	12	26	12	1	0	96	100	Validated	Validated
Poultry Feed	21	6	21	4	0	2	100	67	Validated	Unsuitable
Rice	18	20	18	20	0	0	100	100	Validated	Validated
Rice Crackers, Cakes, Snacks	20	31	18	30	2	1	90	97	Unsuitable	Validated
Seeds, Edible	224	234	217	227	7	7	97	97	Validated	Validated
Shrimp, Cooked	22	11	20	11	2	0	91	100	Unsuitable	Validated
Soybeans	36	13	34	13	2	0	94	100	Unsuitable	Validated
Sprouts Irrigation Water	54	13	45	11	9	2	83	85	Unsuitable	Unsuitable
Sprouts	171	38	138	30	33	8	81	79	Unsuitable	Unsuitable
Squash	69	19	66	19	3	0	96	100	Validated	Validated
Tahini	12	16	12	16	0	0	100	100	Validated	Validated
Tea, Herbal	116	17	95	15	21	2	82	88	Unsuitable	Unsuitable
Textured Soy Protein/Mock Meat	17	26	17	26	0	0	100	100	Validated	Validated
Tomato	49	25	47	25	2	0	96	100	Validated	Validated
Turmeric	24	41	21	36	3	5	88	88	Unsuitable	Unsuitable
Wheat Grain Bakery Products	274	191	269	190	5	1	98	99	Validated	Validated
Whey Protein	13	9	13	9	0	0	100	100	Validated	Validated
White Pepper	21	28	21	28	0	0	100	100	Validated	Validated
Yam/Sweet Potato	12	22	12	21	0	1	100	95	Validated	Validated

Table 2. Food products/matrices for which the validation status is resolved for only one VIDAS™ *Salmonella* detection method.

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Allspice	5	11	5	11	0	0	100	100	Pending	Validated
Amchur Powder	5	14	4	9	1	5	80	64	Pending	Unsuitable
Animal Feed, Pelleted	68	14	58	13	10	1	85	93	Unsuitable	Pending
Aniseed	10	17	9	12	1	5	90	71	Pending	Unsuitable
Annato	8	9	6	8	2	1	75	89	Unsuitable	Pending
Banana Leaf	6	10	5	6	1	4	83	60	Pending	Unsuitable
Basil	16	36	15	35	1	1	94	97	Pending	Validated
Bay Leaves	4	13	4	13	0	0	100	100	Pending	Validated
Bird Seed	14	13	13	11	1	2	93	85	Pending	Unsuitable
Blackberries	13	7	12	7	1	0	92	100	Pending	Validated
Black Pepper	13	30	12	30	1	0	92	100	Pending	Validated
Candy, Coconut	26	4	25	3	1	1	96	75	Validated	Pending
Candy, Peanut	5	8	5	8	0	0	100	100	Pending	Validated
Candy, Tamarind	25	5	22	5	3	0	88	100	Unsuitable	Pending
Canola Meal	7	6	7	6	0	0	100	100	Validated	Pending
Cardamom, Seeds/Spice	6	34	6	34	0	0	100	0	Pending	Validated
Carrots	8	5	8	5	0	0	100	100	Validated	Pending
Cassava/Yuca Root	6	20	6	9	0	11	100	45	Pending	Unsuitable
Celery	22	6	22	6	0	0	100	100	Validated	Pending
Cherries	7	6	4	6	3	1	57	100	Unsuitable	Pending
Coffee	13	12	13	11	0	1	100	92	Validated	Pending
Corn	49	18	40	17	9	1	82	94	Unsuitable	Pending
Cumin	13	28	12	26	1	2	92	93	Pending	Unsuitable
Dates	15	14	14	14	1	0	93	100	Pending	Validated
Dried Beans	73	14	72	13	1	1	99	93	Validated	Pending

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Figs	4	14	4	14	0	0	100	100	Pending	Validated
Fish, Anchovie Snack	13	12	12	10	1	2	92	83	Pending	Unsuitable
Fish, Ntrl/Artfcl Dried	17	18	17	17	0	1	100	94	Validated	Pending
Fish, Smoked	29	18	28	17	1	1	97	94	Validated	Pending
Frog Legs	5	9	5	9	0	0	100	100	Pending	Validated
Fruit Jelly/Jam/Paste	7	5	7	5	0	0	100	100	Validated	Pending
Garlic, Fresh	4	9	4	6	0	3	100	67	Pending	Unsuitable
Hibiscus	7	4	3	3	4	1	43	75	Unsuitable	Pending
Indian Snack Food, Bhujia	13	14	12	14	1	0	92	100	Pending	Validated
Indian Snack Food, Boondi	6	13	6	13	0	0	100	100	Pending	Validated
Indian Snack Food, Samosa	6	11	5	9	1	2	83	82	Pending	Unsuitable
Milk Replacer, Non-medicated	35	6	31	5	4	1	89	83	Unsuitable	Pending
Mixed Vegetables	11	14	9	13	2	1	82	93	Unsuitable	Pending
Mollusks, Gastropods	3	12	3	12	0	0	100	100	Pending	Validated
Mushroom/Fungus	13	28	12	23	1	5	92	82	Pending	Unsuitable
Nutmeg	5	15	4	12	1	3	80	80	Pending	Unsuitable
Onion, Dried	11	5	9	5	2	0	82	100	Unsuitable	Pending
Onion, Fried	7	5	7	5	0	0	100	100	Validated	Pending
Peanuts, Seasoned	13	6	13	6	0	0	100	100	Validated	Pending
Pet Food, Freeze Dried	15	7	13	7	2	0	87	100	Unsuitable	Pending
Plantain Chips	9	11	8	11	1	0	89	100	Pending	Validated
Radish	19	8	17	7	2	1	89	88	Unsuitable	Pending
Raisins	6	10	5	10	1	0	83	100	Pending	Validated
Raspberries	16	10	14	9	2	1	88	90	Unsuitable	Pending
Salsa	7	5	7	5	0	0	100	100	Validated	Pending
Shrimp, Breaded	9	5	9	5	0	0	100	100	Validated	Pending

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Shrimp, Dried	9	10	9	9	0	1	100	90	Validated	Pending
Spring Roll	11	12	10	7	1	5	91	58	Pending	Unsuitable
Starch	11	13	11	12	0	1	100	92	Validated	Pending
Strawberries	38	16	36	15	2	1	95	94	Validated	Pending
Sumac	9	18	5	17	4	1	56	94	Unsuitable	Pending
Taro	11	11	9	10	2	1	82	91	Unsuitable	Pending
Tofu	12	20	11	20	1	0	92	100	Pending	Validated
Yogurt	9	7	7	6	2	1	78	86	Unsuitable	Pending

Table 3. Food products/matrices for which the validation status cannot be assigned to either VIDAS™ *Salmonella* detection methods.

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	*2004.03*	*2011.03*	*2004.03*	*2011.03*	*2004.03*	*2011.03*	*2004.03*	*2011.03*	*2004.03*	*2011.03*
Animal Feed, Oats	18	6	17	6	1	0	94	100	Pending	Pending
Candy, Chocolate	17	5	16	5	1	0	94	100	Pending	Pending
Coconut Cream/Milk/Water	5	13	4	12	1	1	80	92	Pending	Pending
Corn, Processed (flour, milled)	18	6	17	6	1	0	94	100	Pending	Pending
Eel, Cooked	5	5	5	5	0	0	100	100	Pending	Pending
Energy/Nutrient Bars	16	6	15	6	1	0	94	100	Pending	Pending
Falafel	5	4	5	3	0	1	100	75	Pending	Pending
Hing	7	4	6	4	1	0	86	100	Pending	Pending
Indian Snack Food, Bombay Mix	4	4	4	4	0	0	100	100	Pending	Pending
Lemongrass	7	10	6	9	1	1	86	90	Pending	Pending
Mint	3	5	3	5	0	0	100	100	Pending	Pending
Onion, Fresh	11	4	10	4	1	0	91	100	Pending	Pending
Plums	3	9	3	8	0	1	100	89	Pending	Pending
Poultry, Raw	5	8	5	7	0	1	100	88	Pending	Pending
Seaweed	18	16	17	15	1	1	94	94	Pending	Pending
Snail	6	4	5	4	1	0	83	100	Pending	Pending
Soan Papadi	7	4	6	3	1	1	86	75	Pending	Pending

Table 4. AOAC matrix categories, root matrices, and validation study level for food product classification used in analyzing matrix extension spiking data for the VIDAS-SLM *Salmonella* detection method (AOAC OMA 2004.03).

Product Category	AOAC Matrix Category	AOAC Matrix Class	Root Matrix	Validation Study Level
Animal Feed, Pelleted	7. Animal Feed	A. Dry Matter >75%	Lactic Casein	Multi-Laboratory
Annato	5. Miscellaneous Foods	D. Dressings, Condiments, Marinades	None	NA
Asparagus	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Avocado	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Banana, Dried	2. Fruits & Vegetables	D. Dry and Low Moisture	None	NA
Blueberries	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Broccoli	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Brussels Sprouts	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Cactus, Fresh	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Candy, Coconut	NA	NA	None	NA
Candy, Tamarind	NA	NA	None	NA
Canola Meal	7. Animal Feed	A. Dry Matter >75%	None	NA
Carrots	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Cauliflower	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Celery	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Cheese	3. Dairy Products	A. Fermented and Non-fermented	Cheese Powder	Single Laboratory
Cherries	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory

Product Category	AOAC Matrix Category	AOAC Matrix Class	Root Matrix	Validation Study Level
Chili Pepper/Powder (Spice)	8. Spices	Class 5	None	NA
Chocolate (Syrup/Chips/Bars/Powder)	5. Miscellaneous Foods	B. Chocolate	Milk Chocolate	Single Laboratory
Cilantro	8. Spices	Class 1	Black Pepper	Single Laboratory
Cinnamon	8. Spices	Class 3	None	NA
Cloves	8. Spices	Class 6	None	NA
Coconut (Flaked/Grated/Sliced)	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Coconut Powder	2. Fruits & Vegetables	D. Dry and Low Moisture	None	NA
Coffee	NA	NA	None	NA
Coriander	8. Spices	Class 1	Black Pepper	Single Laboratory
Corn	7. Animal Feed	A. Dry Matter >75%	Lactic Casein	Multi-Laboratory
Crustaceans	6. Seafood	C. Crustaceans	Raw, Peeled Shrimp	Multi-Laboratory
Cucumber	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Dietary Supplements	NA	NA	None	NA
Dried Beans	2. Fruits & Vegetables	D. Dry and Low Moisture Products	None	NA
Fennel	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Fenugreek	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Fish, Fresh or Frozen	6. Seafood	A. Finfish	Raw Cod	Single Laboratory
Fish, Ntrl/Artfcl Dried	6. Seafood	A. Finfish	Raw Cod	Single Laboratory
Fish, Smoked	6. Seafood	A. Finfish	Raw Cod	Single Laboratory

Product Category	AOAC Matrix Category	AOAC Matrix Class	Root Matrix	Validation Study Level
Flour, Cereal/Pseudo-cereal Grain	5. Miscellaneous Foods	A. Cereals and Grains	Cake Mix	Single Laboratory
Fruit, Jelly/Jam/Paste	NA	NA	None	NA
Garlic, Dried	8. Spices	Class 2	None	NA
Gelatin	NA	NA	Gelatin	Single Laboratory
Ginger, Dried	8. Spices	Class 1	Black Pepper	Single Laboratory
Green Beans	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Greens, Leafy	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Guacamole	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Hibiscus	NA	NA	None	NA
Indian Snack Food, All in One	NA	NA	None	NA
Indian Snack Food, Chana	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Indian Snack Food, Halva	NA	NA	None	NA
Indian Snack Food, Khatta Meetha	NA	NA	None	NA
Infant Formula	3. Dairy Products	A. Fermented and Non-fermented Products	Non-fat Dried Milk	Multi-Laboratory
Mangos	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Masala/Curry/Spice Mix	8. Spices	NA	None	NA
Melon	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Microgreens	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Milk/Dairy Powder, Dry	3. Dairy Products	A. Fermented and Non-fermented Products	Non-fat Dried Milk	Multi-Laboratory

Product Category	AOAC Matrix Category	AOAC Matrix Class	Root Matrix	Validation Study Level
Milk Replacer, Medicated	3. Dairy Products	A. Fermented and Non-fermented Products	Non-fat Dried Milk	Multi-Laboratory
Milk Replacer, Non-medicated	3. Dairy Products	A. Fermented and Non-fermented Products	Non-fat Dried Milk	Multi-Laboratory
Mixed Vegetables	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Mole	5. Miscellaneous Foods	D. Dressings, Condiments, Marinades	None	NA
Mollusks, Bivalve	6. Seafood	B. Molluscan Shellfish	None	NA
Mollusks, Cephalopods	6. Seafood	B. Molluscan Shellfish	None	NA
Nuts (Tree Nuts)	2. Fruits & Vegetables	F. Nutmeats	Pecans	Single Laboratory
Onion, Dried	8. Spices	Class 2	None	NA
Onion, Fried	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Onion, Scallions	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Oregano	8. Spices	Class 3	None	NA
Papayas	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Paprika	8. Spices	Class 1	Black Pepper	Single Laboratory
Pasta/Noodles (Wheat)	5. Miscellaneous Foods	C. Pasta	Dry Pasta	Single Laboratory
Pea/Pea Protein	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Peanuts	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Peanuts, Seasoned	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Peppers	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Pet Food, Dry	7. Animal Feed	A. Dry Matter >75%	Lactic Casein	Multi-Laboratory

Product Category	AOAC Matrix Category	AOAC Matrix Class	Root Matrix	Validation Study Level
Pet Food, Freeze-dried	1. Meat and Poultry	A. Water <20%	None	NA
Pet Food, Moist	7. Animal Feed	B. Dry Matter <75%	None	NA
Pet Food, Raw	1. Meat and Poultry	B. Water Content 20-80%	Raw Pork	Multi-Laboratory
Pet Treats, Bones	1. Meat and Poultry	A. Water <20%	None	NA
Pet Treats, Jerky Style	7. Animal Feed	A. Dry Matter >75%	None	NA
Pet Treats, Rawhide	1. Meat and Poultry	A. Water <20%	None	NA
Potato Chips	2. Fruits and Vegetables	D. Dry and Low Moisture Products	None	NA
Poultry Feed	7. Animal Feed	A. Dry Matter >75%	Soy Flour	Multi-Laboratory
Radish	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Raspberries	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Rice	7. Animal Feed	A. Dry Matter >75%	Soy Flour	Multi-Laboratory
Rice Crackers, Cakes, Snacks	5. Miscellaneous Foods	A. Cereals and Grains	Cake Mix	Single Laboratory
Salsa	5. Miscellaneous Foods	D. Dressings, Condiments, Marinades	None	NA
Seeds, Edible	2. Fruits and Vegetables	D. Dry and Low Moisture Products	None	NA
Shrimp, Breaded	6. Seafood	C. Crustaceans	Raw, Peeled Shrimp	Multi-Laboratory
Shrimp, Cooked	6. Seafood	C. Crustaceans	Raw, Peeled Shrimp	Multi-Laboratory
Shrimp, Dried	6. Seafood	C. Crustaceans	Raw, Peeled Shrimp	Multi-Laboratory
Soybeans	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Sprouts Irrigation Water	NA	NA	Spent Irrigation Water	Single Laboratory

Product Category	AOAC Matrix Category	AOAC Matrix Class	Root Matrix	Validation Study Level
Sprouts	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Squash	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Starch	NA	NA	None	NA
Strawberries	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Sumac	NA	NA	None	NA
Tahini	5. Miscellaneous Foods	D. Dressings, Condiments, Marinades	None	NA
Taro	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Tea, Herbal	NA	NA	None	NA
Textured Soy Protein/Mock Meat	5. Miscellaneous Foods	E. Soy Products	Soy Flour	Multi-Laboratory
Tomato	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Turmeric	8. Spices	Class 1	Black Pepper	Single Laboratory
Wheat Grain Bakery Products	5. Miscellaneous Foods	A. Cereals and Grains	Cake Mix	Single Laboratory
Whey Protein	3. Dairy Products	A. Fermented and Non-fermented Products	Non-fat Dried Milk	Multi-Laboratory
White Pepper	8. Spices	Class 1	Black Pepper	Single Laboratory
Yam/Sweet Potato	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cauliflower	Single Laboratory
Yogurt	3. Dairy Products	A. Fermented and Non-fermented Products	Non-fat Dried Milk	Multi-Laboratory

Table 5. AOAC matrix categories, root matrices, and validation study level for food product classification used in analyzing matrix extension spiking data for the VIDAS-SLM Easy (AOAC OMA 2011.03) *Salmonella* detection method.

Product Category	AOAC Matrix Category	AOAC Matrix Class	Root Matrix	Validation Study Level
Allspice	8. Spices	Class 3	None	NA
Amchur Powder	2. Fruits & Vegetables	D. Dry and Low Moisture	None	NA
Aniseed	8. Spices	Class 1	Black Pepper	Single Laboratory
Asparagus	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Avocado	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Banana, Dried	2. Fruits & Vegetables	D. Dry and Low Moisture	None	NA
Banana Leaf	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Basil	8. Spices	Class 4	None	NA
Bay Leave	8. Spices	Class 4	None	NA
Bird Seed	7. Animal Feed	A. Dry Matter >75%	Dry Pet Food	Single Laboratory
Blackberries	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Black Pepper	8. Spices	Class 1	Black Pepper	Single Laboratory
Blueberries	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Broccoli	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Brussels Sprouts	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Cactus, Fresh	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Candy, Peanut	NA	NA	None	NA

Product Category	AOAC Matrix Category	AOAC Matrix Class	Root Matrix	Validation Study Level
Cardamom, Seeds/Spice	8. Spices	Class 1	Black Pepper	Single Laboratory
Cassava/Yuca Root	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Cauliflower	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Cheese	3. Dairy Products	A. Fermented and Non-fermented	Whole Milk	Single Laboratory
Chili Pepper/Powder (Spice)	8. Spices	Class 5	None	NA
Chocolate (Syrup/Chips/Bars/Powder)	5. Miscellaneous Foods	B. Chocolate	Dark Chocolate	Single Laboratory
Cilantro	8. Spices	Class 1	Black Pepper	Single Laboratory
Cinnamon	8. Spices	Class 3	None	NA
Cloves	8. Spices	Class 6	None	NA
Coconut (Flaked/Grated/Sliced)	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Coconut Powder	2. Fruits & Vegetables	D. Dry and Low Moisture	None	NA
Coriander	8. Spices	Class 1	Black Pepper	Single Laboratory
Crustaceans	6. Seafood	C. Crustaceans	Raw, Peeled Shrimp	Multi-Laboratory
Cucumber	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Cumin	8. Spices	Class 1	Black Pepper	Single Laboratory
Dates	2. Fruits & Vegetables	D. Dry and Low Moisture	None	NA
Dietary Supplements	NA	NA	None	NA
Fennel	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Fenugreek	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory

Product Category	AOAC Matrix Category	AOAC Matrix Class	Root Matrix	Validation Study Level
Figs	2. Fruits & Vegetables	D. Dry and Low Moisture	None	NA
Fish, Anchovies	6. Seafood	A. Finfish	Raw Cod	Single Laboratory
Fish, Fresh or Frozen	6. Seafood	A. Finfish	Raw Cod	Single Laboratory
Flour, Cereal/Pseudo-cereal Grain	5. Miscellaneous Foods	A. Cereals and Grains	Cake Mix	Single Laboratory
Frog Legs	1. Meat and Poultry	B. Water Content 20-80%	Raw Poultry	Single Laboratory
Garlic, Dried	8. Spices	Class 2	None	NA
Garlic, Fresh	8. Spices	Class 2	None	NA
Gelatin	NA	NA	None	NA
Ginger, Dried	8. Spices	Class 1	Black Pepper	Single Laboratory
Green Beans	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Greens, Leafy	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Guacamole	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Indian Snack Food, All in One	NA	NA	None	NA
Indian Snack Food, Bhujia	NA	NA	None	NA
Indian Snack Food, Boondi	NA	NA	None	NA
Indian Snack Food, Chana	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Indian Snack Food, Halva	NA	NA	None	NA
Indian Snack Food, Khatta Meetha	NA	NA	None	NA
Indian Snack Food, Samosa	5. Miscellaneous Foods	A. Cereals and Grains	Cake Mix	Single Laboratory

Product Category	AOAC Matrix Category	AOAC Matrix Class	Root Matrix	Validation Study Level
Infant Formula	3. Dairy Products	A. Fermented and Non-fermented Products	Non-fat Dried Milk	Single Laboratory
Mangos	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Masala/Curry/Spice Mix	8. Spices	NA	None	Na
Melon	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Microgreens	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Milk/Dairy Powder, Dry	3. Dairy Products	A. Fermented and Non-fermented Products	Non-fat Dried Milk	Single Laboratory
Milk Replacer, Medicated	3. Dairy Products	A. Fermented and Non-fermented Products	Non-fat Dried Milk	Single Laboratory
Mole	5. Miscellaneous Foods	D. Dressings, Condiments, Marinades	None	NA
Mollusks, Bivalve	6. Seafood	B. Molluscan Shellfish	None	NA
Mollusks, Cephalopods	6. Seafood	B. Molluscan Shellfish	None	NA
Mollusks, Gastropods	6. Seafood	B. Molluscan Shellfish	None	NA
Mushroom/Fungi	NA	NA	None	NA
Nutmeg	8. Spices	Class 1	Black Pepper	Single Laboratory
Nuts (Tree Nuts)	2. Fruits & Vegetables	F. Nutmeats	Pecans	Single Laboratory
Onion, Scallions	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Oregano	8. Spices	Class 3	None	NA
Papayas	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Paprika	8. Spices	Class 1	Black Pepper	Single Laboratory
Pasta/Noodles (Wheat)	5. Miscellaneous Foods	C. Pasta	Dry Pasta	Single Laboratory

Product Category	AOAC Matrix Category	AOAC Matrix Class	Root Matrix	Validation Study Level
Pea/Pea Protein	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Peanuts	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Peppers	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Pet Food, Dry	7. Animal Feed	A. Dry Matter >75%	Dry Pet Food	Single Laboratory
Pet Food, Moist	7. Animal Feed	B. Dry Matter <75%	Moist Pet Food	Single Laboratory
Pet Food, Raw	1. Meat and Poultry	B. Water Content 20-80%	Raw Poultry	Single Laboratory
Pet Treats, Bones	1. Meat and Poultry	A. Water <20%	None	NA
Pet Treats, Jerky Style	7. Animal Feed	A. Dry Matter >75%	None	NA
Pet Treats, Rawhide	1. Meat and Poultry	A. Water <20%	None	NA
Plantain Chips	2. Fruits & Vegetables	D. Dry and Low Moisture	None	NA
Potato Chips	2. Fruits and Vegetables	D. Dry and Low Moisture Products	None	Na
Poultry Feed	7. Animal Feed	A. Dry Matter >75%	None	NA
Raisins	2. Fruits & Vegetables	D. Dry and Low Moisture	None	NA
Rice	7. Animal Feed	A. Dry Matter >75%	None	NA
Rice Crackers, Cakes, Snacks	5. Miscellaneous Foods	A. Cereals and Grains	Cake Mix	Single Laboratory
Seeds, Edible	2. Fruits and Vegetables	D. Dry and Low Moisture Products	None	NA
Shrimp, Cooked	6. Seafood	C. Crustaceans	Raw, Peeled Shrimp	Multi-Laboratory
Soybeans	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Spring Roll	NA	NA	None	NA

Product Category	AOAC Matrix Category	AOAC Matrix Class	Root Matrix	Validation Study Level
Sprouts Irrigation Water	NA	NA	Irrigation Water	Single Laboratory
Sprouts	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Squash	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Tahini	5. Miscellaneous Foods	D. Dressings, Condiments, Marinades	None	NA
Tea, Herbal	NA	NA	None	NA
Textured Soy Protein/Mock Meat	5. Miscellaneous Foods	E. Soy Products	None	NA
Tofu	5. Miscellaneous Foods	E. Soy Products	None	NA
Tomato	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory
Turmeric	8. Spices	Class 1	Black Pepper	Single Laboratory
Wheat Grain Bakery Products	5. Miscellaneous Foods	A. Cereals and Grains	Cake Mix	Single Laboratory
Whey Protein	3. Dairy Products	A. Fermented and Non-fermented Products	Non-fat Dried Milk	Single Laboratory
White Pepper	8. Spices	Class 1	Black Pepper	Single Laboratory
Yam/Sweet Potato	2. Fruits & Vegetables	A. Fresh, B. Frozen and/or Heat Processed	Cantaloupe	Single Laboratory

Table S1. VIDAS-SLM (AOAC OMA 2004.03) and VIDAS-SLM Easy (AOAC OMA 2011.03) validation status for raw seafoods.

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Crustaceans										
Crab	32	28	32	28	0	0	100	100	Validated	Validated
Crayfish	9	1	9	1	0	0	100	100	Validated	Pending
Lobster	11	4	11	4	0	0	100	100	Validated	Pending
Shrimp	46	22	46	21	0	1	100	95	Validated	Validated
Mollusks, Bivalve										
Clams	15	1	15	1	0	0	100	100	Validated	Pending
Mussels	14	13	13	12	1	1	93	92	Pending	Pending
Scallops	19	9	19	9	0	0	100	100	Validated	Validated
Mollusks, Cephalopods										
Cuttlefish	1	1	1	1	0	01	100	100	Pending	Pending
Octopus	8	27	7	26	1	1	88	96	Pending	Validated
Squid	56	23	55	23	1	0	98	100	Validated	Validated
Mollusks, Gastropods										
Whelks	3	12	3	12	0	0	100	100	Pending	Validated

Table S2. VIDAS-SLM (AOAC OMA 2004.03) and VIDAS-SLM Easy (AOAC OMA 2011.03) validation status comparison for Dietary Supplements.

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Dietary Supplements										
Fats, Oils, Lipids	10	2	8	2	2	0	80	100	Unsuitable	Pending
Fiber	20	2	17	2	3	0	85	100	Unsuitable	Pending
Herbals and Botanicals	117	33	86	27	31	6	74	82	Unsuitable	Unsuitable
Kratom	44	27	42	21	2	6	95	78	Validated	Unsuitable
Minerals	12	1	6	1	6	0	50	100	Unsuitable	Pending
Protein	9	8	8	8	1	0	89	100	Pending	Validated
Vitamins	21	2	14	2	7	0	67	100	Unsuitable	Pending
Vitamins + Minerals	10	1	9	0	1	1	90	0	Pending	Pending

Table S3. VIDAS-SLM (AOAC OMA 2004.03) and VIDAS-SLM Easy (AOAC OMA 2011.03) validation status comparison for Leafy Green vegetables.

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Greens, Leafy	164	84	161	79	3	5	98	94	Validated	Unsuitable
Chinese (Choy, Gai Lin)	26	11	25	10	1	1	96	91	Validated	Pending
Collard	5	2	5	2	0	0	100	100	Pending	Pending
Kale	80	27	79	25	1	2	99	93	Validated	Unsuitable
Lettuce	16	31	16	29	0	2	100	94	Validated	Unsuitable
Spinach	22	12	22	12	0	0	100	100	Validated	Validated

Table S4. VIDAS-SLM (AOAC OMA 2004.03) and VIDAS-SLM Easy (AOAC OMA 2011.03) validation status comparison for Tree Nuts.

			Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Nuts (Tree Nuts)										
Almonds	21	28	20	26	1	2	95	93	Validated	Unsuitable
Brazil	10	4	10	4	0	0	100	100	Validated	Pending
Cashew	28	45	27	45	1	0	96	100	Validated	Validated
Macadamia	14	16	14	16	0	0	100	100	Validated	Validated
Mixed	6	10	6	10	0	0	100	100	Pending	Validated
Pecans	26	1	25	1	1	0	96	100	Validated	Pending
Pine	7	3	7	3	0	0	100	100	Validated	Pending
Pistachio	7	10	7	10	0	0	100	100	Validated	Pending
Seasoned	9	8	9	8	0	0	100	100	Validated	Validated

Table S5. VIDAS-SLM (AOAC OMA 2004.03) and VIDAS-SLM Easy (AOAC OMA 2011.03) validation status comparison for Chili Peppers.

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Peppers										
Anaheim	64	6	63	5	1	1	98	83	Validated	Pending
Arbol	3	1	3	1	0	0	100	100	Pending	Pending
Bell	281	84	260	73	21	11	93	87	Unsuitable	Unsuitable
Caribe	13	2	12	2	1	0	92	100	Pending	Pending
Guajillo	2	2	2	2	0	0	100	100	Pending	Pending
Habanero	39	2	39	2	0	0	100	100	Validated	Pending
Jalapeno	318	25	310	22	8	3	97	88	Validated	Unsuitable
Korean	5	1	5	1	0	0	100	100	Pending	Pending
Non-specified Chilis	90	12	86	12	4	0	96	100	Validated	Validated
Pasilla	50	6	49	6	1	0	98	100	Validated	Pending
Pimiento	2	1	2	1	0	0	100	100	Pending	Pending
Poblano	56	6	54	6	2	0	96	100	Validated	Pending
Serrano	165	12	163	11	2	1	99	92	Validated	Pending
Shishito	8	2	8	2	0	0	100	100	Validated	Pending
Thai Chili	8	1	8	1	0	0	100	100	Validated	Pending

Table S6. VIDAS-SLM (AOAC OMA 2004.03) and VIDAS-SLM Easy (AOAC OMA 2011.03) validation status comparison for Edible Seeds.

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Seeds, Edible										
Alfalfa	19	3	19	3	0	0	100	100	Validated	Pending
Amaranth	5	2	5	2	0	0	100	100	Pending	Pending
	6	11	6	11	0	0	100	100	Pending	Validated
Basil										
Broccoli	7	2	5	2	2	0	71	100	Unsuitable	Pending
Chia	31	37	31	36	0	1	100	97	Validated	Validated
Clover	18	5	18	5	0	0	100	100	Validated	Pending
Flax	13	9	13	9	0	0	100	100	Validated	Validated
Melon	7	19	6	19	1	0	86	100	Pending	Validated
Poppy	4	8	4	7	0	1	100	88	Pending	Pending
Pumpkin	38	20	38	19	0	1	100	95	Validated	Validated
Quinoa	5	9	4	9	1	0	80	100	Pending	Validated
Sesame	22	43	21	43	1	0	95	100	Validated	Validated
Sunflower	14	35	14	35	0	0	100	100	Validated	Validated

Table S7. VIDAS-SLM (AOAC OMA 2004.03) and VIDAS-SLM Easy (AOAC OMA 2011.03) validation status comparison for Sprouts.

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Sprouts										
Alfalfa	34	10	30	6	4	4	88	60	Unsuitable	Unsuitable
Broccoli	11	1	10	1	1	0	91	100	Pending	Pending
Clover	15	5	13	4	2	1	87	80	Unsuitable	Pending
Mixed	10	3	10	3	0	0	100	100	Validated	Pending
Mung Bean	63	14	45	11	18	3	71	79	Unsuitable	Unsuitable
Radish	11	1	9	1	2	0	82	100	Unsuitable	Pending
Soybean	20	2	14	0	6	0	70	100	Unsuitable	Pending
Sunflower	5	1	5	1	0	0	100	100	Pending	Pending

Table S8. VIDAS-SLM (AOAC OMA 2004.03) and VIDAS-SLM Easy (AOAC OMA 2011.03) validation status comparison for Microgreen vegetables.

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Microgreens										
Arugula	4	10	3	9	1	1	75	90	Pending	Pending
	4	2	3	2	1	0	75	100	Pending	Pending
Basil Beet	3	2	3	2	0	0	100	100	Pending	Pending
Broccoli	3	6	3	5	0	1	100	83	Pending	Pending
Cabbage	1	1	1	1	0	0	100	100	Pending	Pending
Cilantro	5	2	5	2	0	0	100	100	Pending	Pending
Intensity Mix	4	2	4	2	0	0	100	100	Pending	Pending
Mixed	17	7	16	7	1	0	94	100	Pending	Validated
Mustard	1	3	1	3	0	0	100	100	Pending	Pending
Pea	4	2	4	2	0	0	100	100	Pending	Pending
Peppercress	1	1	1	1	0	0	100	100	Pending	Pending
Radish	7	2	7	1	0	1	100	50	Validated	Pending
Rainbow Mix	12	2	9	2	3	0	75	100	Unsuitable	Pending
Sunflower	4	1	4	1	0	0	100	100	Pending	Pending
Wasabi	1	1	1	1	0	0	100	100	Pending	Pending
Wheatgrass	1	1	1	1	0	0	100	100	Pending	Pending

Table S9. VIDAS-SLM (AOAC OMA 2004.03) and VIDAS-SLM Easy (AOAC OMA 2011.03) validation status comparison for Dried Beans.

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Dried Beans										
Adzuki	4	1	4	1	0	0	100	100	Pending	Pending
Broad Bean	12	3	12	3	0	0	100	100	Validated	Pending
Mung	35	7	35	6	0	1	100	86	Validated	Pending

Table S10. VIDAS-SLM (AOAC OMA 2004.03) and VIDAS-SLM Easy (AOAC OMA 2011.03) validation status comparison for Wheat Grain Bakery Products.

Product	Total Results		Positive Detections		Negative Detections		Detection Sensitivity		Validation Status	
VIDAS Method	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***	***2004.03***	***2011.03***
Wheat Grain Bakery Products										
Bread Dough	1	1	1	1	0	0	100	100	Pending	Pending
Bread/Rolls	24	30	24	30	0	0	100	100	Validated	Validated
Cookie/Biscuit/Wafer Dough	4	3	4	3	0	0	100	100	Pending	Pending
Crackers	17	23	17	23	0	0	100	100	Validated	Validated
Dry Mix	3	1	3	1	0	0	100	100	Pending	Pending
Filled Crackers	2	2	2	2	0	0	100	100	Pending	Pending
Filled/Iced Cookies/Biscuits/Wafers	54	15	54	15	0	0	100	100	Validated	Validated
Other	14	10	14	9	0	1	100	90	Validated	Pending
Plain Cookies/Biscuits/Wafers	57	41	57	41	0	0	100	100	Validated	Validated
Sweet Goods, non-filled	38	21	35	21	3	0	92	100	Unsuitable	Validated
Sweet Goods, Crème/Custard Filled	10	38	9	38	1	0	90	100	Pending	Validated
Sweet Goods, Dough/Batter	8	1	8	1	0	0	100	100	Validated	Pending
Sweet Goods Dry Mix	2	1	2	1	0	0	100	100	Pending	Pending