The TEMPO® TVC method, an automated system for the enumeration of total viable counts in food, has been approved as AOAC Official Method\textsuperscript{SM} 2008.10. The enumeration of total aerobic mesophilic flora is used to determine the sanitary quality of food products and can indicate its state of freshness or decomposition. The total flora count can be used to judge the conditions in which the food was produced, transported, and stored. The TEMPO system determines the number of total aerobic bacteria present in a food sample according to a calculation based on the most probable number (MPN) method.

In the multilaboratory collaborative study, published in J. AOAC Int. \textbf{92}, 165(2009) by Study Director Ronald L. Johnson (bioMérieux, Inc., Hazelwood, Missouri, USA) and Erin S. Crowley, Patrick M. Bird, Marianne K. Torontali, James R. Agin, and David G. Goins (Q Laboratories, Inc., Cincinnati, Ohio, USA), the method was compared to AOAC Official Method\textsuperscript{SM} 966.23 for determination of aerobic plate count for nondairy products and the Standard Methods for the Examination of Dairy Products (SMEDP) Standard Plate Count for dairy products. Five food types including raw ground beef, raw ground chicken, cooked whitefish fillets, bagged lettuce, and pasteurized milk were analyzed for total viable counts by 14 collaborating laboratories throughout the United States and Canada (see sidebar). The study demonstrated that the overall repeatability, reproducibility, and mean log counts of the TEMPO TVC method were statistically comparable to those of the two standard methods at the 5\% level.

The TEMPO TVC test utilizes a vial of culture medium and card specific to this test. The culture medium is inoculated with the sample and the inoculated medium is transferred into a card containing 48 wells.
Three lots of naturally contaminated food products representing a wide range of counts were tested for each of the five food types. The study demonstrated that the overall repeatability, reproducibility, and mean log counts of the TEMPO TVC method were statistically comparable to those of the two standard methods.

Collaborating Laboratories

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of three different volumes: 2.25, 22.5, and 225 µL. The card is hermetically sealed and incubated for 40–48 hours. The microorganisms present in the card hydrolyze the substrate in the culture medium, which results in the appearance of a fluorescent signal. The TEMPO system detects the signal and calculates the amount of microorganisms present in the test sample for an automatic determination of the MPN.

Evaluation of the method was part of an AOAC harmonized Performance-Tested Method℠ (PTM) followed by Official Method℠ validation and approval. The TEMPO TVC method was previously validated and approved according to AOAC guidelines in the harmonized PTM study. For the PTM study, 18 foods were evaluated using the test method, which included meat, poultry, fish and seafood, eggs and dairy products.

Conclusion

Three lots of naturally contaminated food products representing a wide range of counts were tested for each of the five food types. The study demonstrated that the overall repeatability, reproducibility, and mean log counts of the TEMPO TVC method were statistically comparable to those of the two standard methods (AOAC Official Method℠ 966.23 and SMEDP). Based on the results of the collaborative study, which were published in J. AOAC Int. 92, 165(2009), the method was adopted Official First Action for the enumeration of total aerobic counts in raw ground beef, bagged lettuce, cooked whitefish fillets, raw ground chicken, raw ground pork, heat-processed cooked roast beef, smoked turkey, fresh ground chicken, frozen cooked chicken nuggets, heat-processed grilled chicken, frozen catfish, heat-processed frozen fish, heat-processed crab cakes, raw cod, frozen green beans, raw bean sprouts, vanilla ice cream, pasteurized milk, hash brown potatoes, and processed frozen egg omelet. Method 2008.10 is available on the Official Methods of Analysis (OMA) Online (http://eoma.aoac.org/).

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