1. SCOPE:

This method employs procedures for the isolation, quantitation, and confirmation of Coagulase-Positive *Staphylococcus aureus* in foods, animal feeds, and feed ingredients, and environmental samples.

2. PURPOSE:

2.1. Coagulase-Positive *Staphylococcus aureus* is a food pathogen, and many strains can produce enterotoxins when *S. aureus* grows to high levels. These enterotoxins are heat resistant and can even survive the canning process. If *S. aureus* grows and produces enterotoxins in a food that is subsequently heat treated, the vegetative cells of *S. aureus* will be eliminated, but the food may still contain the enterotoxins and therefore continue to be a health hazard. Common sources of *S. aureus* are food handlers, skin and mucous membranes (coughing and sneezing) of people.

2.2. The presence of a large number of *S. aureus* organisms in a food may indicate poor handling or sanitation. Small population of *S. aureus* at time of testing may be remnants of large populations that produced enterotoxins in sufficient quantities to cause food poisoning.

2.3. This selective spread plate procedure is used to detect Coagulase-Positive *Staphylococcus aureus* in the samples and is recommended for foods in which more than 100 *S. aureus* CFU/g are expected. Presumptive positives are confirmed using biochemical and physiological tests.

2.4. Decimal dilutions of the sample are surface plated onto agar plates (Baird Parker) selective for *S. aureus*. Following incubation, typical colonies are selected and subjected to confirmatory tests.

2.5. Known Interferences: Chemical preservatives or other inhibitors in a sample can cause inhibition of growth on lower dilutions. The accuracy of colony count methods may be limited by the failure of some microorganisms to form visible colonies on the agar medium. This failure can result from nutritional deficiencies of the medium, unfavorable oxygen tension, unfavorable incubation temperature or length of incubation, or failure of an injured cell to repair itself.

2.6. If samples contain a large level of background flora, the spread plate method may not be the best method of analysis. Instead, the MPN procedure (XMSMPN) would be more beneficial.

2.7. Lowest Confidence Level: Spread Plate Procedure 10 Colony Forming Unit (CFU) per gram (g) or milliliter (ml) when 1.0 ml of a 1:10 dilution is plated.

3. PRECISION:

Assay precision may vary with test matrix and physiological state of the microorganisms in the test sample. Guidelines used to describe method precision are defined in NPSOP3040, *Verification of Microbiological Tests*.

4. REFERENCES

Bacteriological Analytical Manual, USFDA, 2016, Online, Chapter 12