

CM 21526 - S.F.P. AGAR BASE

INTENDED USE

For presumptive identification and enumeration of *Clostridium perfringens* in foods.

PRODUCT SUMMARY AND EXPLANATION

Clostridium perfringens food poisoning is one of the common types of human food borne illness. *C. perfringens* is found in raw meats, poultry, dehydrated soups and sauces, raw vegetables and other foods and food ingredients, but occurrences of foodborne illness are usually associated with cooked meat or poultry products. Spores of some strains that may resist heat during cooking germinate and grow in foods that are not adequately refrigerated. A heat-labile enterotoxin produced only by sporulating cells induces the major symptom of diarrhea in *perfringens* poisoning. The foods in which conditions are favorable for sporulation may contain enterotoxin. The food poisoning can be diagnosed using quantitative anaerobic cultures to test food and faeces. Enumerating the microorganism in food samples plays a role in the epidemiological investigation of outbreaks of foodborne illness.

Shahidi Ferguson *Perfringens* (S.F.P.) Agar Base is prepared according to the formulation of Shahidi and Ferguson.

Lecithinase and sulphite reactions can be identified on this medium. The medium along with the egg yolk emulsion and the supplement containing kanamycin and polymyxin B as the selective agents give high degree of selectivity for *C. perfringens*. Some strains of *C. perfringens* may form an opaque zone around the colony due to their lecithinase activity. Lecithinase positive facultative anaerobes may grow on S.F.P. Agar making the plates completely opaque and thus may mask the egg yolk reaction of *C. perfringens*.

Organisms other than *C. perfringens* may produce black colonies. Therefore, presumptive *C. perfringens* colonies need to be further confirmed by motility test, nitrate reduction and gelatin liquefaction.

For the isolation and enumeration of *C. perfringens* from foodstuffs, inoculate the surface of the medium with 0.1 ml of decimal dilutions of the specimen in Peptone Water. Allow the media surface to dry for 5-10 minutes. Cover the surface with 10 ml of agar without egg yolk emulsion and solidify. Incubate at 37°C for 20-24 hours in anaerobic conditions. For presumptive count, select and count those colonies, which are larger black and surrounded by an opaque zone.

COMPOSITION

Ingredients	Gms / Ltr
Tryptose	15.000
Papaic digest of soyabean meal	5.000
Yeast extract	5.000
Sodium bisulphite	1.000
Ferric ammonium citrate	1.000
Agar	20.

PRINCIPLE

Tryptose, papaic digest of soyabean meal and yeast extract supply nitrogenous compounds, carbon, sulphur, vitamin B complex etc. necessary for the growth of *Clostridia*. Sodium bisulphite and ferric ammonium citrate are the indicators of sulphite reduction by *C. perfringens*, which thereby produces black colonies. Kanamycin and polymyxin B used in the medium inhibit competitive bacteria and thus allowing a better recovery of vegetative cells and spores of *C. perfringens* than either polymyxin B or sulphadiazine alone.

INSTRUCTION FOR USE

Dissolve 23.5 grams in 475 ml distilled water.

Heat to boiling to dissolve the medium completely.



Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.

Cool to 50°C. Add 25 ml of Egg Yolk Emulsion and reconstituted contents of 1 vial of S.F.P. Supplement.

Mix well before pouring into sterile Petri plates.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Cream to yellow homogeneous free flowing powder.

Appearance of prepared medium : Basal medium yields amber coloured slightly opalescent gel. With addition of egg yolk Emulsion, yellow coloured opaque gel forms in Petri plates.

pH (at 25°C) : 7.6±0.2

INTERPRETATION

Cultural characteristics observed after an incubation under anaerobic condition with added Egg Yolk Emulsion and S.F.P. Supplement.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Color of the colony	Lecithinase	Incubation Temperature	Incubation Period
Clostridium perfringens	12924	50-100	Luxuriant	≥70%	Black	Positive reaction, opaque zone around colony	35-37°C	40-48 Hours
Escherichia coli	25922	≥10 ³	Inhibited	0%	-	Negative reaction	35-37°C	40-48 Hours

PACKAGING:

In pack size of 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out, replace the cap tightly to protect from hydration.

Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

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