


**Food and Dairy
Microbiology
(Code: FS 0711,
dairy part),**

- Practical lesson 5, for Food safety program, level 3, 2019–2020
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Psychrotrophic plate count method (PPC)

- **Psychrotrophic (psycrophilic)** bacteria are cold-tolerant to cold loving bacteria capable of growth within the temperature range of 0- 20 °C.
- These organisms tend to accumulate to high numbers in raw milk supplies held beyond normal storage periods at refrigerator temperature.
- Many strains of this group are potentially pathogenic, while others are responsible for lipolysis (rancidity) and proteolysis (putrefaction) of raw milk.

- Pasteurization methods easily destroy psychrotrophs most of which are gram-negative, heat-labile bacilli.
- Species of *Pseudomonas*, *Flavobacterium*, *Alcaligenes*, *Acenitobacter* and *Bacillus* are often encountered as psychrotrophic bacteria.
- Certain species of *Streptococcus* and yeasts and molds found in dairy products also may be considered as psychrotrophs.
- These bacteria are nonpathogenic in general, but they may cause varieties of off-flavors in dairy products such as, fruity, stale, bitter, putrid and rancid flavors.

- They also may be involved in loss of flavor of cultured dairy products.
- These bacteria are best enumerated by standard plate count method employing an incubation temperature of 7°C and an incubation time of 10 days.

Method:

- Plate out suspected raw milk samples according to the SPC method at appropriate dilution levels:
- 1- distribute 10 ml of raw milk sample evenly over 3 plates, a 1ml sample in 1 plate and 1:10 sample in 1 plate.
- 2- add 12-15 ml SMA medium to each plate and allow to harden.
- 3- incubate at 7 °C for 10 days.
- 4- determine the PPC/ ml.

References

- DiLiello, L.R., 1982. *Methods in food and dairy microbiology*. AVI Publishing Co. Inc..

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With my
best
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