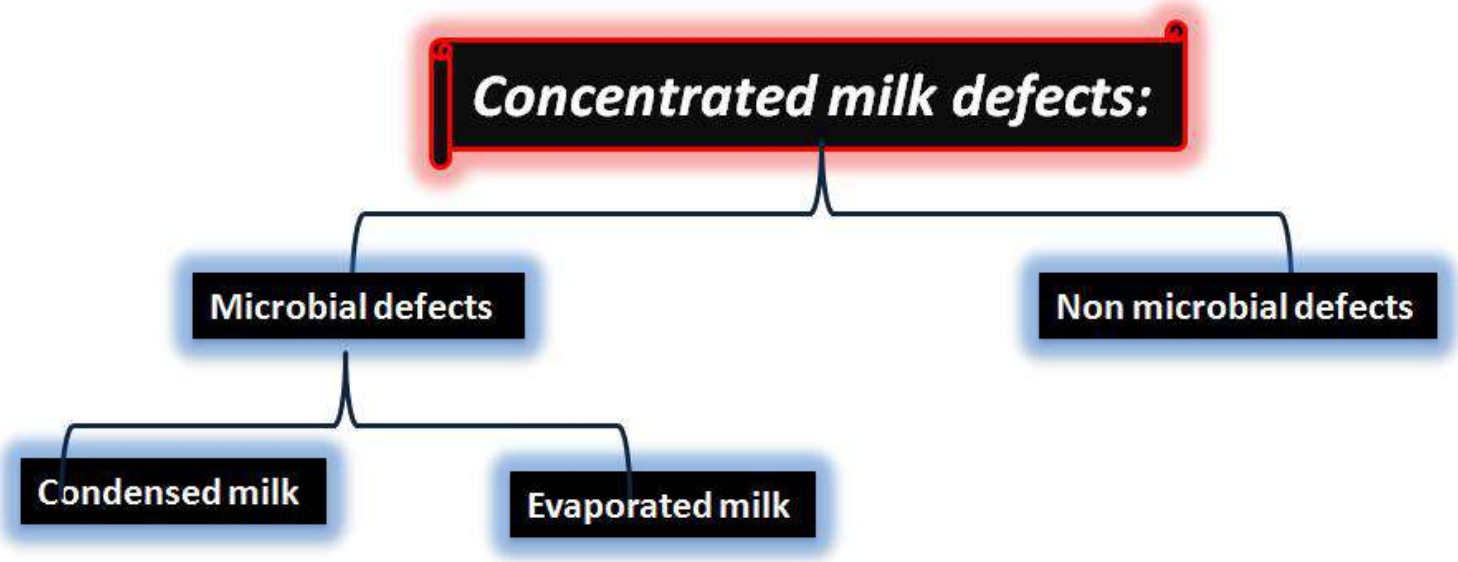

Concentrated milk defects:
Microbial defects
Non microbial defects
Condensed milk
Evaporated milk

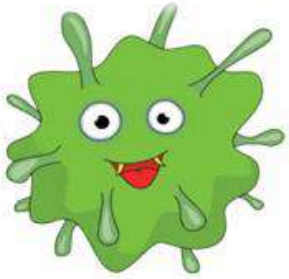
Microbial defects of sweetened condensed milk
(blown, thickening, buttons, rancidity)

Puncture, sealing

1- Blown cans

Common in worm months

- Caused by Co2 or H2 or mixture (Microorganism dependent)
-Contents (highly odorours)



Osmotolerant gas producing yeast
(torula latis condensei, saccharomyces spp,candida)(alcoho& gases)

Coliforms
(poor sanitary conditions)
(Acid flavour & gas)

Bacillus lactis aerogenes

Control

-Using good sugar quality
- Efficient plant sanitation and canning condition
- not store in hot place

2- Thickening

-Bacilus subtilis
-Bacilis micoids
-B.stearothermophilus
- Micrococcus strains

→ Rennin like enz. → Clotting & aggregation for milk casein

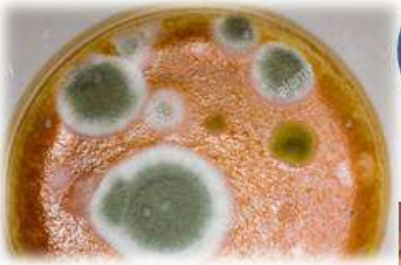
So, can be detected by souring & cheesy texture due to curd formation

Control

-Low storage temp.
-Improve plant sanitation
-Bactofugation (???)

3- Buttons

Small masses of mould mycelium & coagulated casein usually colored white to brown may be found in the surface or subsurface layers



bad taste
cheesy
consistency

-Pencillum
-Asperigillus

} Clotting enzyme cause localized coagulation

Detected by presence of mould mycelium ,coagulated casein , hard cheesy consistency &colord curd

Control

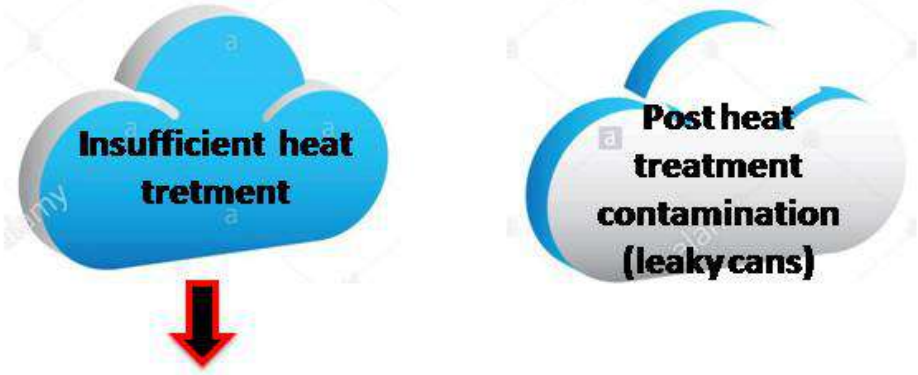
-Canning under a septic conditions (vaccum package)
-Improve plant sanitation (CIP).
-Storage below (12-15c).
-Inversation (⬇ gasses).

4- Rancidity

-Contamination of milk by lipase producing bacteria.

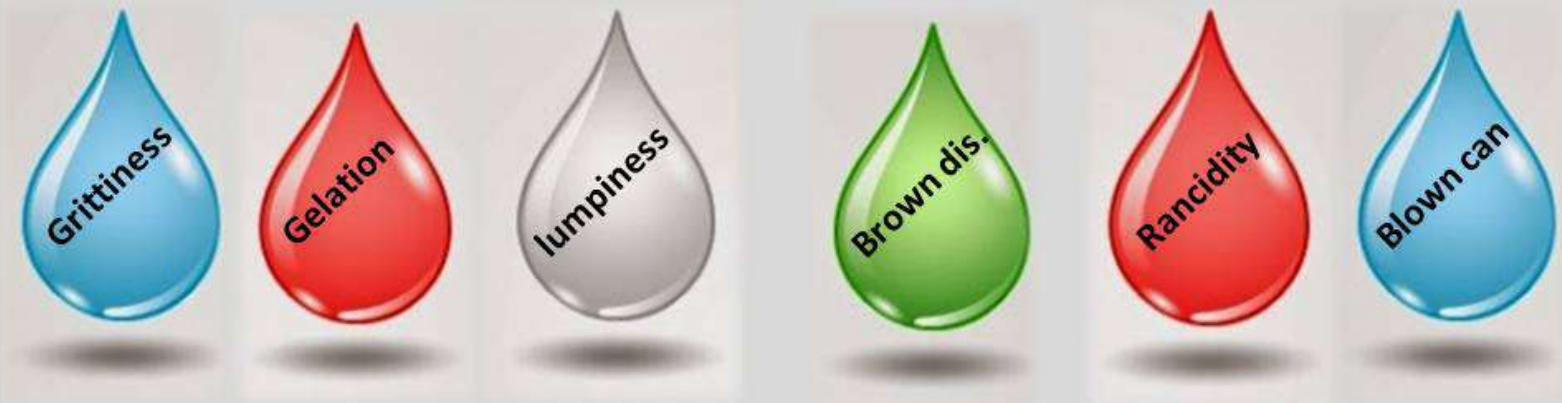
Microbial defects of unsweetened evaporated milk

Sources



- B.coagulans & B.Stearothermophilus ➡ cause acid coagulation &cheesy odor.
- B.subtilis ➡ cause non acid curd then digested to brownish liquid with bitter taste.
- B.megaterium ➡ cause cheesy odor curd with some gases.
- Closterdia spp ➡ cause gas production with puterifaction and H2S.

Non- Microbial defects of concentrated milk (industry)



Sweetened & un sweetened

Selection & preparation of milk

Color& flavour abnormalities
Spore& thermodurics bacteria
Clafication by centrifugal separator
Milk standardization (fat %)

Cooled clarified , standardized milk at 4°c

stabilization (Sod citrate.)
preheating
Addition of sugar
Milk standardization (sugar index)
Concentration under vacuum

Preheated, standardized, stabilized ,conc. milk

Rabid cooling
Package (filling & canning)

Unsweetened concentrated milk

Small hard crystals due to:
1- Slow cooling after heating
2- Insufficient dissolving of sugar

stabilization (Sod citrate.)

preheating

Change in the colloidal sol. Of proteins due to storage and excessive heating or evaporation

Selection & preparation of milk

Color& flavour abnormalities

Small clots float on milk surface & cheesy consistency due to selection of mastitic milk with abnormal high albumen & globulin

preheating

Concentration under vacuum

Due to the effect of high temperature During processing result in charring of lactose

Selection & preparation of milk

Chemical abnormalities

Selection of milk contain high lipase enz.or cystic ovary or milk at the end of lactation and presence of cupper residues.

Due to overfilling of can by cold milk which under heating expands
Or due to chemical action on the metal of the cans.

Other Concentrated milks

1-Block milk

product derived from concentrated milk with sugar addition

T.S% =84-90% Water%= 16% Can be cut by a knife

2- Caramelized condensed milk

Market mostly as a paste or in powder or tablet form .Produced by concentrating & caramelizing milk With 18 to20% sucrose or glucose with or without Flavour supplement.

3- Condensed skim milk

Obtained by a simple concentration of skim milk by vacuum evaporation or RO consider more cheaper—— with protein ratio 50-80%

4- Recombined concentrated milk

Used as substitution of whole milk in area where there is shortage in supply. it prepared from milk powder.

Thank you for attention

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