Chemical sterilisers in the dairy industry

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There is concern in the cheese industry that residues from new chemical sterilisers used by dairy farmers could affect cheese making processes. The sterilisers could also affect tests for antibiotic residues in milk. The responsibility of seeing that chemical sterilisers do not enter the milk belongs to the dairy farmers. They should follow the manufacturers' recommendations and use the chemicals with care.

To show the effect of chemical steriliser residues in milk on cheese starter cultures and tests for residual antibiotics, two aspects of their use were investigated.

1. The effect of residual chemical sterilisers on cheese starter cultures.
2. The interference of chemical sterilisers on the Keogh and Naylor tests for residual antibiotics in milk.

The chemical sterilisers were:
(a) Chlorine (sodium hypochlorite).
(b) Iodine (Iodophore "Redene").
(c) Quaternary ammonium compound (Hyamine 1622 "Genbac").
(d) Chlorhexidine ("Hibitane").

Chemical Sterilisers and Cheese Cultures
The cheese cultures used in (1) were:
C3, C7, C10, C11, C13, EB2, EB4, EB9, E8, HP, ML1.

Individual strains show considerable differences in susceptibility. Much lower concentrations of quaternary ammonium compounds and chlorhexidine were needed to give a 20 per cent. reduction in starter activity than chlorine and iodine. This also indicates that the effectiveness of chlorine and iodine as bactericides is reduced in the presence of milk.

Chemical Sterilisers and Residual Antibiotics
Both the Keogh and Naylor tests rely on the activity of organisms being reduced in the presence of an antibiotic in milk. Chemical sterilisers in milk were also expected to produce a similar reduction in activity.

It was shown that extremely high concentrations of chlorine and iodine in milk were necessary to affect the test. Quaternary ammonium compounds and chlorhexidine affected the test at much lower concentrations.

SUMMARY
- If manufacturers' recommendations for the use of sterilisers on dairy farms are followed the amount of steriliser which enters the milk would not affect cheese starter activity or tests for antibiotic residues.
- Gross contamination of milk with chemical sterilisers could affect both cheese starter activity and tests for antibiotic. However chlorine and iodine contamination would be readily detected by smell.
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