

PRODUCTION OF DAIRY PRODUCTS IN FOOD SERVICE
ESTABLISHMENTS

D: Defects & Corrective Actions



Ministry of
Health

Appendix D

Defects and Corrective Actions

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Cultured Products

Yogurt, Dahi

Defect	Cause	Solution
Absence of typical yogurt flavour and aroma	Too low an acid development.	Increase amount of starter.
	Poor quality bacterial culture.	Check time and temperature of incubation.
		Get new bacterial culture.
Unclean and /or bitter flavour	Poor quality milk.	Check best before date, handling and sanitation steps.
	Contaminated bacterial culture..	Get new bacterial culture.
Slow acid production	Insufficient bacterial culture	Increase amount of bacterial culture.
	Old bacterial culture.	Check time and temperature of incubation.
		Get new bacterial culture.
Weak curd formation	Low milk solids content.	Add skim milk powder or evaporated milk.
	Poor bacterial culture.	Get new bacterial culture.
Too acidic		Monitor fermentation.
Curdled	Bacterial culture added when temperature of milk too high.	Check milk temperature prior to addition of bacterial culture.

Kefir

Defect	Cause	Solution
Smells like fresh yeast	Kefir grains are contaminated or out of balance.	Purchase new kefir grains.
Separation into curds and whey	Kefir is over cultured or ratio of milk to kefir grains is incorrect.	Reduce the incubation time.
		Lower the incubation temperature.
		Increase the amount of milk.
		Reduce the kefir grain addition rate.
Kefir grains have turned pink, orange, red or green.	Mold contamination.	Purchase new kefir grains.

Buttermilk and Sour Cream

Defect	Cause	Solution
Flat flavor	Low solids.	Add skim milk powder.
	Insufficient acid.	Increase incubation time, check temperature.
	Excessive agitation.	Avoid excessive agitation.
	Poor bacterial culture.	Get new bacterial culture.
Undesirable flavour	Contaminating bacteria.	Check pasteurization and sanitation. Get new bacterial culture.
Sharp biting flavour	Excess acid.	Check time and temperature of incubation, perhaps reduce time.
Too thick	Excess acid.	Check time and temperature of incubation, perhaps reduce time.
	High solids.	Use less skim milk powder.
Too thin	Low acidity.	Increase amount of bacterial culture.
	Low solids.	Add skim milk powder.

Crème Fraîche

Defect	Cause	Solution
The culturing process is very similar to buttermilk and sour cream. See defects associated with sour cream and buttermilk in previous section.		
Cream does not thicken or develop acidity during culturing step	Cream has been UHT pasteurized or has added stabilizers.	Purchase a high fat cream that has not been UHT pasteurized and does not contain additives.
Undesirable flavour	Contaminating bacteria.	Check sanitation and temperature control.
		Get new bacterial culture.

Evaporation

Ghee

Defect	Cause	Solution
Overcooked/burnt	Excessively high temperature used for clarification.	Reduce heat.
Oxidized/Oily/Metallic	Fat oxidation due to exposure to copper, iron and/or sunlight.	Avoid using salted butter for ghee manufacture.
		Fill jars to brim to avoid headspace air (oxygen).

Khoya

Defect	Cause	Solution
Excessive browning/ burnt particles	Excessively high heating temperature, especially in last stages of evaporation step.	Optimize heating temperature and type of cooking pot.
	Poor scraping and stirring pan during heating. Too slow.	Optimize speed when stirring and scraping pan.
Fat and/or water leakage	Incorrect method: i.e. total solids of milk ingredient, poor heating rate, not suitable pot.	Improve method of manufacture.
Coarse texture	Due to using milk with high acidity.	Use fresh milk.
	Too low-fat content in milk.	Use a milk with higher fat content.
	Excessively high heat used during evaporation especially during last stage of the process.	Optimize heat during evaporation.
Moldy surface	High moisture content in finished product.	Optimizing evaporation process to achieve desired finished product moisture content.
	Improper storage conditions.	Store in airtight container in cooler.

Clotted Cream

Defect	Cause	Solution
Cream does not separate, and form clot does not form	Cream has been UHT pasteurized or has added stabilizers.	Purchase a high fat cream that has not been UHT pasteurized and does not contain additives.
	Insufficient fat in cream ingredient.	Commercial whipping cream can have as low as 34 %BF. This is too low for this product. Find a source of high fat cream ($\geq 36\%$).

Fresh Cheese

Ricotta

Defect	Cause	Solution
No coagulation of protein during heating step	Quality of whey – source of whey, age, cheese making procedure.	Use fresh whey
		Do not use whey from cottage cheese manufacture. This whey is called acid whey and will not work in this process.

Bocconcini, Mozzarella, Burrata

Defect	Cause	Solution
Milk does not coagulate immediately	Milk is old or excessive heat treatment.	Use fresh milk.
	Too little rennet is used.	Increase addition rate.
	Bacterial culture is inactive.	Purchase new culture.
No clean break achieved (poor separation of curds and whey)	Needs longer ripening.	Increase ripening period.
	Too little rennet used.	Increase addition rate.
Finished cheese tastes bitter	Too much rennet was used.	Use less rennet.
	Excessive acidity developed.	Reduce ripening time.
	Too little salt added.	Add more salt.

Frozen Dairy Desserts

Ice Cream, Gelato, Sherbet, Kulfi

Defect	Cause	Solution
Ice Crystals	Time and temperature abuse.	Cool and freeze rapidly. Cool mix to 4 °C before freezing/aeration step.
		Incorrect formulation. Lacks total solids.
		Freeze packaged product quickly. A freezer of -18°C or lower is beneficial.
Undesirable flavour	Contaminating bacteria/old dairy ingredients.	Use fresh dairy ingredients. Do not use dairy ingredients that are past best before date.
		Improve sanitation and storage temperature control practices.
Fat globules (small flecks of milk fat) in product	Poor mixing (emulsification) of ingredients.	Use an immersion blender on the hot mix. Allow to cool over night and then re-blend the cold mix just before freezing.

Direct Acidification

Paneer

Defect	Cause	Solution
Sour flavour	High titratable acidity in milk.	Use freshest milk possible.
	Too much acidic coagulant (i.e., lemon juice, vinegar).	Use proper amount of coagulant. Determine best use rate for process.
Coarse texture	High titratable acidity in milk.	Use freshest milk possible.
	Too low a pH at coagulation.	Reduce amount of acidulant used. Determine best use rate for process.
Hard	Incorrect ratio of fat to solids not fat (SNF) in milk.	Standardize fat: SNF ratio to 1:1.65 (see standardization method in appendix).
Mouldy surface	Excessive moisture in paneer.	Improve the pressing step and release more whey. Wrap well and store in refrigerator in airtight container.