

MICROBIAL FERMENTATION

Product	Organism	Process	Details
Bread	Yeast	Aerobic and anaerobic respiration at 20°C	Flour starch is converted to sugars by bread enzymes when flour is wet to form dough. CO ₂ produced by yeast gives small bubbles which expand on cooking so bread rises. Kneading adds oxygen improving rising.
Yoghurt	Bacteria	Anaerobic respiration at 40°C	Lactose (milk sugar) converted to lactic acid which (1) gives an acid taste; (2) coagulates (thickens) on refrigeration; (3) preserves yoghurt (most other bacteria do not grow at pH4 of yoghurt).
Single-cell protein (SCP)	Yeast; Various fungi	Aerobic respiration	A waste product such as straw, sugar cane plus other nutrients such as ammonia, magnesium. Yeast/fungus reproduces giving biomass. Nutrients continually added, organism continually removed, purified and processed for animal or human consumption.
Penicillin	Penicillium fungus	Aerobic respiration	Used as antibiotic.
Wine, beer	Yeast	Anaerobic respiration	Produces alcohol, flavour. Distilled for spirits.

Other microbial products include cheese, butter, other antibiotics, enzymes for many uses, human insulin and other hormones, food supplements.