

# BIOPROTECTION IN ACTION

## How Food Cultures Keep Food Safe & Fresh

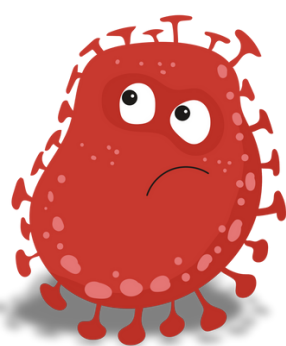
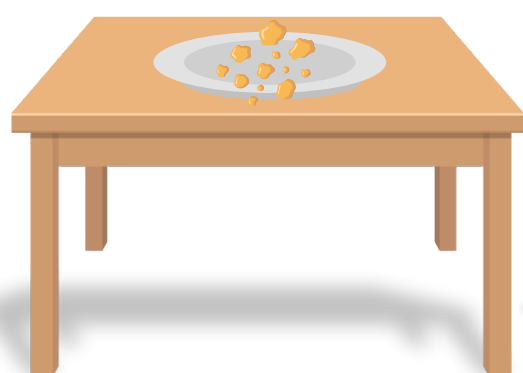
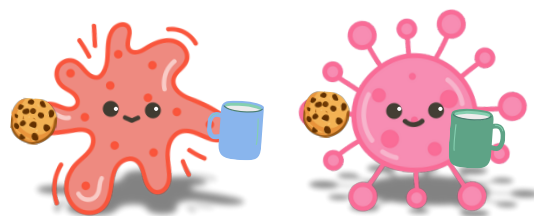
Bioprotection uses carefully selected microbial cultures to inhibit the growth of undesirable microorganisms. These cultures **extend shelf life, maintain product quality, and reduce food waste** — all through natural biological mechanisms.

### MODE 1 – OCCUPYING PHYSICAL SPACE

**Mechanism:** Beneficial cultures colonise the surface or interior of the food, physically blocking potential spoilage or pathogenic microorganisms from establishing themselves.



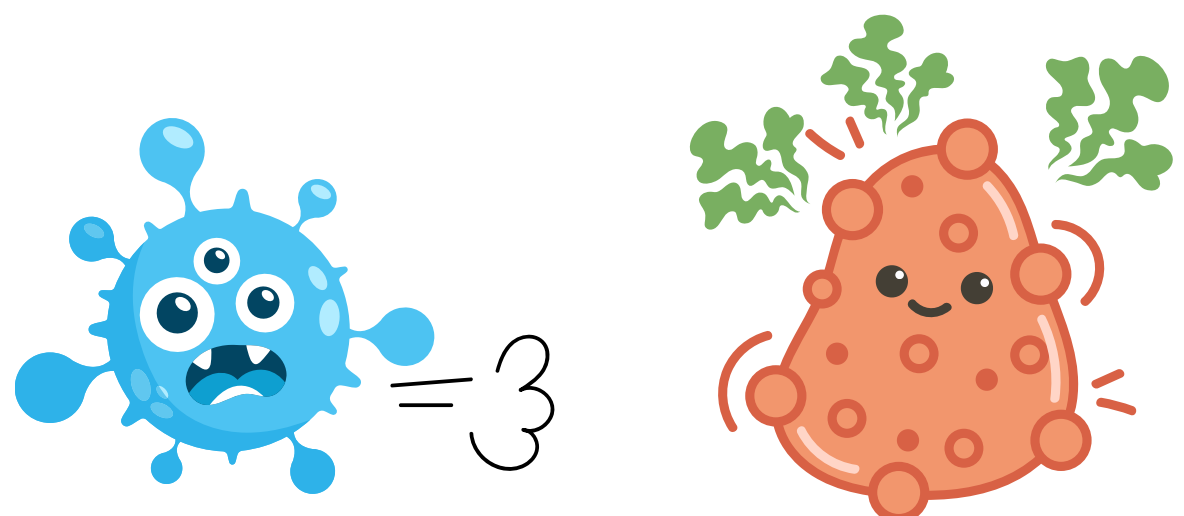
### MODE 2 – COMPETING FOR NUTRIENTS



**Mechanism:** Protective cultures rapidly consume key nutrients in the food matrix, limiting the resources available for harmful microorganisms and slowing or preventing their growth.

### MODE 3 – PRODUCING ANTIMICROBIAL COMPOUNDS

**Mechanism:** Certain protective cultures produce naturally occurring compounds, such as bacteriocins, organic acids, or enzymes, which inhibit or inactivate undesirable microorganisms.



Through these mechanisms, bioprotective food cultures are an effective, natural tool for ensuring food safety, maintaining quality, and supporting sustainability goals.

