

Beneficial Effects of Probiotics

Amrita Poonia

Assistant Professor

Centre of Food Science & Technology

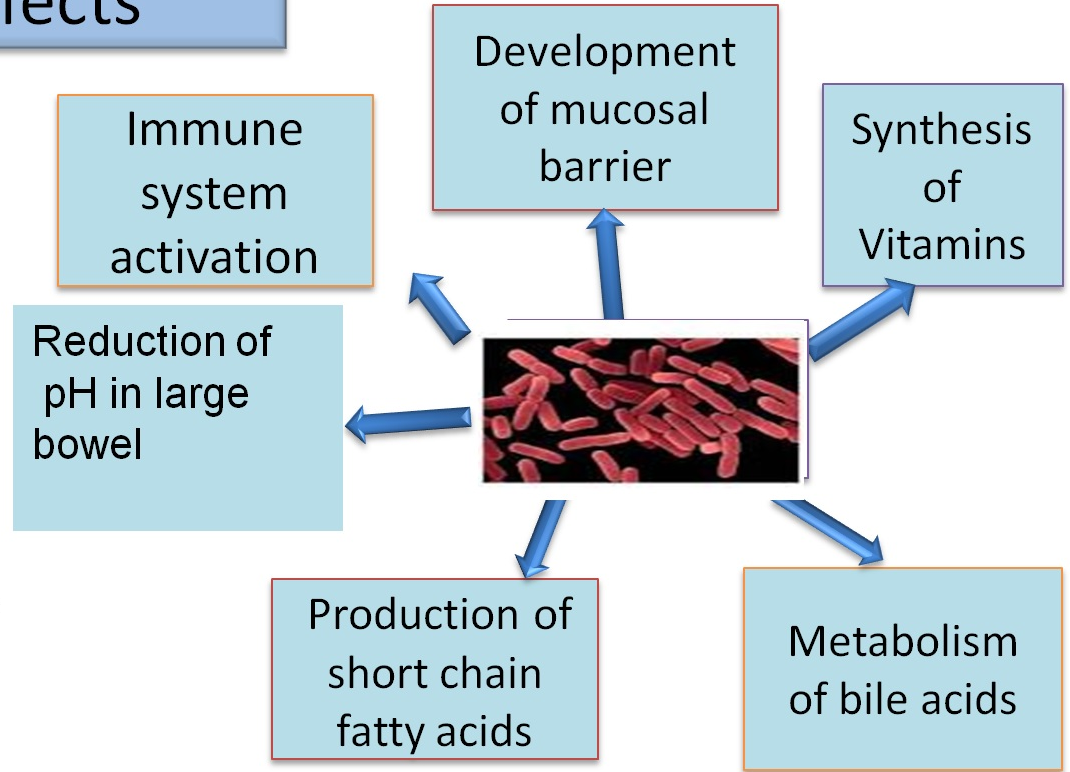
Banaras Hindu University, Varanasi

Benefits of Probiotics

- Improved tolerance of lactose
- Protection from gastroenteritis
- Reduction of toxins
- Cholesterol reduction
- Vitamin synthesis
- Irritable bowel syndrome
- Improved digestion and gut function
- Food allergy
- Immune regulation
- Mineral bioavailability

Physiological effects

- The physiological effect related to probiotic bacteria include the gut pH, production of some digestive enzymes and vitamins, production of antibacterial substances, e.g. organic acids, bacteriocines, hydrogen peroxide etc.



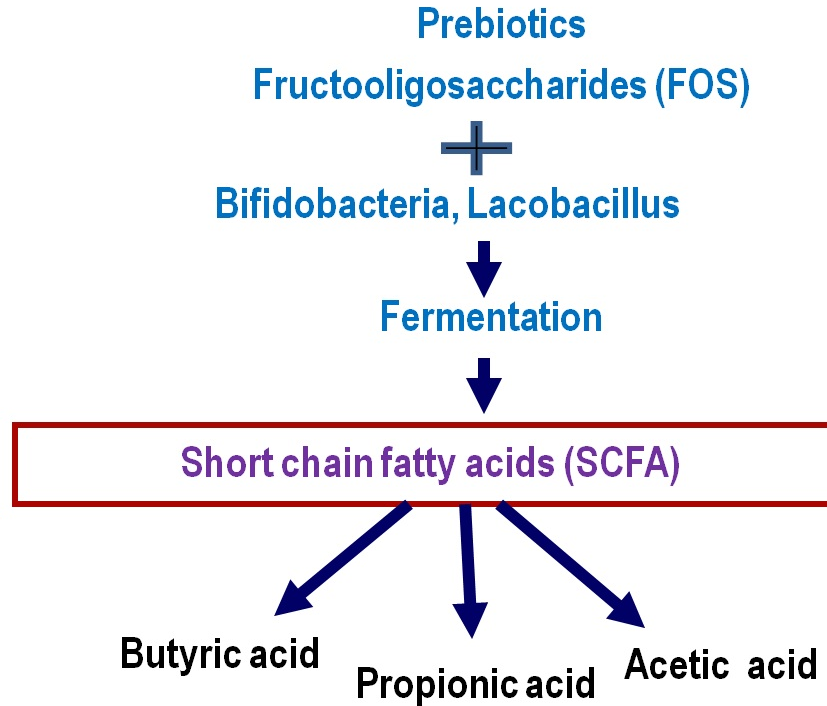
Probiotics

```
graph TD; A[Probiotics] --> B["Antimicrobial peptides + Bacteriocins<br/>Permeability of cytoplasmic membrane of target cells<br/>Release of small cytoplasmic particles<br/>Depolarization of membrane potential which leads to cell death"]; B --> C[Antipathogenic activity]
```

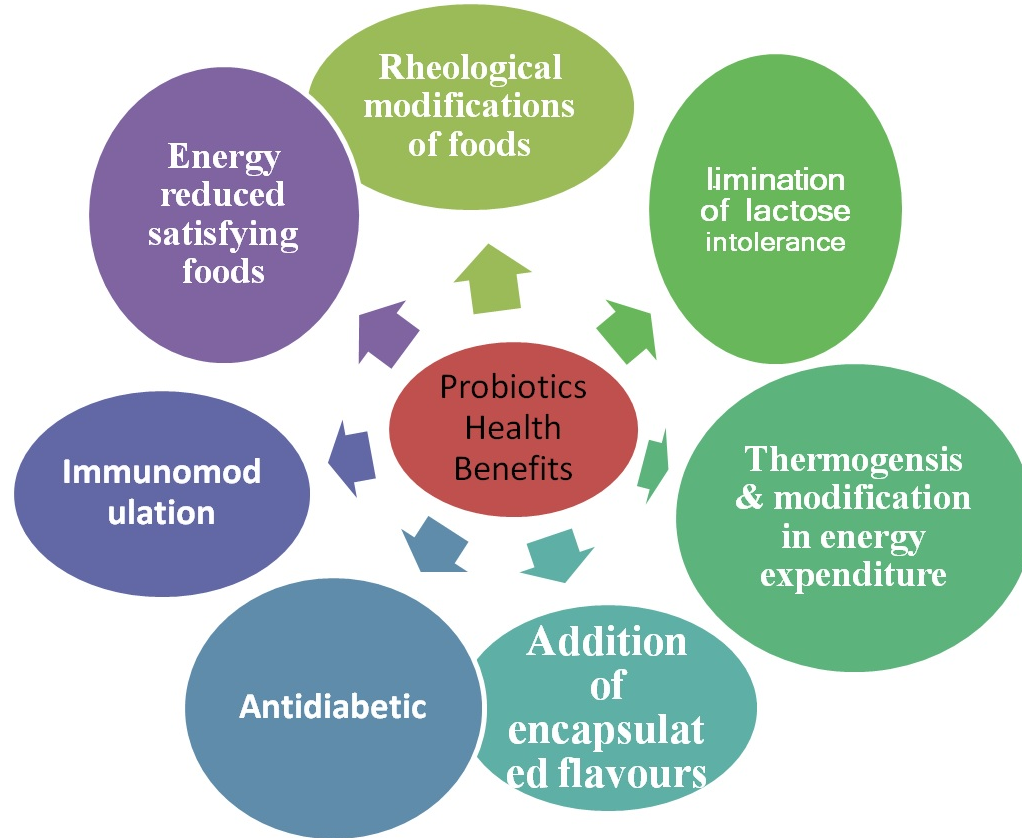
- Antimicrobial peptides + Bacteriocins
- Permeability of cytoplasmic membrane of target cells
- Release of small cytoplasmic particles
- Depolarization of membrane potential which leads to cell death

Antipathogenic activity

Development of short chain fatty acids



Probiotics Health Benefits



Improvements for survival of probiotics

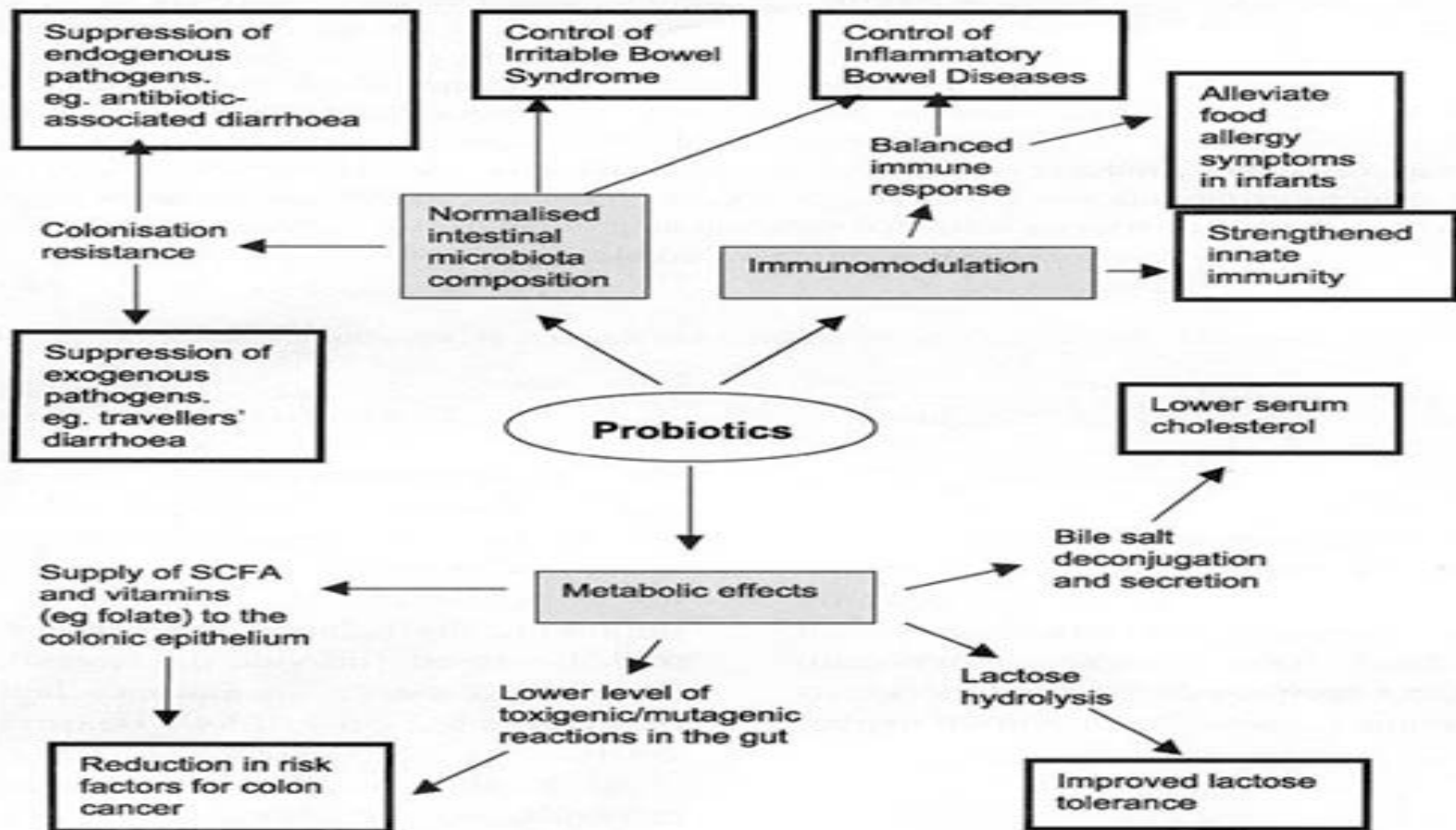
Heat from pelleting and length of storage of probiotics may cause the non viability of the product. For improving the survival of probiotic cultures:

- **Microencapsulation:** Entrapment of micro-organisms with artificial/ biological membranes/ supports/ coverings
- **Prebiotics** : Addition of prebiotics such as inulin/fructo-oligosacchrides etc.
- **Other food supplements** :Addition of other food additives such as fibres, Vitamins etc.

Challenges for Indian Probiotic Products



- Misconceptions about probiotics
- Gaps in the knowledge
- Scientific evidence and clinical studies
- Inappropriate labeling of organism
- Safety studies
- Access is limited to affluent class
- Technological challenges in maintaining viability



Proposed health benefits stemming from probiotic consumption.