

## Value added processing of egg

The presence of many bioactive components in eggs opens new windows for value-added processing of eggs.

### Antimicrobial properties

Several of the egg white proteins have been found to have antibacterial properties.

- **Lysozyme:** Lyzes gram positive bacteria
- **Conalbumin:** binds metal ions making them unavailable to bacteria
- **Avidin:** binds biotin making it unavailable to bacteria
- **Ovoflavoprotein:** binds riboflavin making it unavailable to bacteria
- **Ovomucoid:** Inhibits trypsin
- **Cystatin:** Inhibits ficin and papain

Lysozymes and avidin are now being commercially separated using cation-exchange resins.

**Lysozymes** are used in

- Eye drops
- Inhibit bacteria in cheese making
- Spray on vegetables to prevent bacterial growth
- Pharmaceutical uses
- Effective against Listeria

### Antioxidants from eggs

- Adding egg white to ground poultry meat decreased oxidation during cooking.
- **Conalbumin** was an effective antioxidant when added to ground turkey meat.
- **Phosvitin** (a yolk protein with metal binding capabilities) was an effective antioxidant.

### Antibodies from eggs

- Antibodies from eggs may have application against microorganisms in human and livestock or poultry.
- Serum antibodies of hyperimmunised hens are efficiently transferred and accumulated in egg yolk.

- There are also efficient cation exchange chromatographic techniques for separating these antibodies from egg yolk.
- Antibodies from eggs can be effectively used to treat mastitis in dairy cow.
- Antibodies from eggs may also have potential in treating AIDS.

### **Edible packaging film from egg white protein**

- Scientists prepare edible egg white films.
- Egg albumen films are clearer and more transparent than white gluten, soy protein isolates and corn zein films.
- Egg protein films can be used in food, chemical and pharmaceutical industries.

### **Utilization of egg shell membranes**

- Egg shells including membranes are dried and used as calcium source in laying rations.
- They are also used as fertilizer source.
- Egg shell membranes protein can be used to grow human skin fibroblasts for severe burn situations.
- Egg membrane protein is also being used in many cosmetics.

### **Egg yolk constituents**

- The egg yolk (vitelline) membrane has utilization in tissue culture.
- Egg yolk lecithin combined with vitamin B12 may slow the progress and possibly prevent Alzheimer's disease.