Technologies for Advances in Food Packaging

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About FIRC

Since 2007

One-stop technology and resource centre for food enterprises
Our Role

Applied R&D
- Novel Packaging Solutions
- Functional Foods & Ingredients

Knowledge & Technology Transfer
- Consumer Centric Innovation
- Food Product Innovation
- Food Process Innovation
- Food Packaging Innovation
- Food Automation

Platforms
- Applied R&D
- Consultancy
- Training

Improve Time to Market
Innovation begins here……
CONTAINMENT
Less is More...

**Soluble Soup Pouch**

Primary packaging is film made from edible materials

Containment for dry ingredients

Dissolvable at temperatures above 70°C

Can be coloured & heat sealed

Less packaging disposed

**CONTAINMENT**
Reduce FOODPrint...

Plant extracts was incorporated into packaging materials to confer functional properties that PROTECTS the food from

- Biological: Insect infestation, Enzymatic activities, Microorganisms (Bacteria, fungi, yeasts & molds)
- Chemical: Reaction with light, water & oxygen
- Physical: Physical abuse & stress

Active Packaging
Reduce FOODPrint...

Anti-microbial Packaging

Controlled-release packaging films

Configurable multi-layer films

Extend shelf life of chilled meat to more than 5 days

Progressive release of anti-microbial agent through selective degradation

Interfacial diffusion between packaging material-food

LDPE AMFPD1 AMFPD2

PROTECT
Reduce FOODPrint...

Anti-microbial Packaging

Nanocomposites offering enhanced barrier performance

Able to prolong the shelf life of foods

PROTECT
Spice it up…

Insects infesting stored foods—common household problems

Most dried food products are susceptible to insect infestation

Essential oils, spices and plant extracts
Spice it up…

Ants Repellent Packaging

Integration of essential oils & spice extracts

Render anti-feedant effects and insect repellency

Packaging that repels ants and weevils
Fitter Products...

Packaging as a System

Apply knowledge on food properties and responses to its environment to design packaging system

Combination of packaging technologies & materials to extend shelf life of food products
Fitter Products…

Modified Atmosphere Packaging
Use of gas compositions to preserve the quality of post-harvest foods

Extend shelf life of chilled salmon to more than 10 days

Extend shelf life of deshelled durian to 14 days

PROTECT
CONVENIENCE
Reposition Home Brews…

**Soups in Pouches**

Home brewed soups always invoke a sense of comfort and belonging in everyone.

Series of soups closely replicating home cooked soups through hurdle technologies and thermal resistant packaging system.

Shelf stable for a year at ambient temperature.
Making it Efficient…

Packaging Process

Increases productivity through packaging process automation &/or workflow re-design

Shorten production time

Labour reduction; relieve issues on labour crunch and shortages

Alleviate mundane and labourious process, labour fatigue

CONVENIENCE
COMMUNICATION
Engaging your Senses...

Intelligent Packaging

Contains an external or internal indicator

PROVIDING INFORMATION on the package history and/or food quality

COMMUNICATE
Engaging your Senses....

Spoilage Indicator

Natural spoilage indicators developed from plant/fruit extracts

Colour profile of anthocyanin established

COMMUNICATE
Engaging your Senses....

Day 1

Day 3

COMMUNICATE
Advances in Packaging
Bringing Food Concepts to Reality ™