

Consumer acceptance of functional foods and novel food technologies

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Functional Foods



- There is no unique definition of functional food and these foods still not represent specific food category.
- The definition of functional food products is understood in the wider meaning and includes three main concepts as follows:
 - health benefits,
 - the technological processes and
 - nutritional function.

Functional Foods

- The term “functional food” was first coined in Japan.
 - “Food products fortified with special constituents that possess advantageous physiological effects.”
- Only in Japan a formal legislative – **FOSHU** status - **Foods for Specific Health Uses**



Functional Foods – recent suggestion for definition

- “Natural or processed foods that contains known or unknown biologically-active compounds which:
 - in defined effective non-toxic amounts, provide a clinically proven and documented health benefit for the prevention, management, or treatment of chronic disease.”

17th international conference, 2014,
Functional Food Center & USDA

Functional Foods

- Currently, the European government categorizes food into:
 - “conventional foods, modified foods, foods for special dietary use and medical foods”.
- Unlike Japan, however, the EU government does not have a formal legislative definition for "functional foods."

Functional Foods – definition used in publications

- “Food products can only be considered functional if together with the basic nutritional impact it has beneficial effects on:
 - one or more functions of the human organism thus either improving the general and physical conditions or/and decreasing the risk of the evolution of diseases”

Functional Foods - market

- Functional food development is one of the fastest growing food sectors and represents one of the most interesting areas for research and innovation in the food industry
- Japan and US are the world's largest markets of functional foods followed by Europe (more in central and northern countries than in Mediterranean)

Functional Foods – Consumers view

- The increasing consumer requirements on functional food products might be explained by:
 - the huge increase of the healthcare costs
 - the constant increase in life expectancy
 - the desire for improved quality of life
 - **NATURAL WAY OF HEALING**
 - LIFE WITHOUT DRUGS

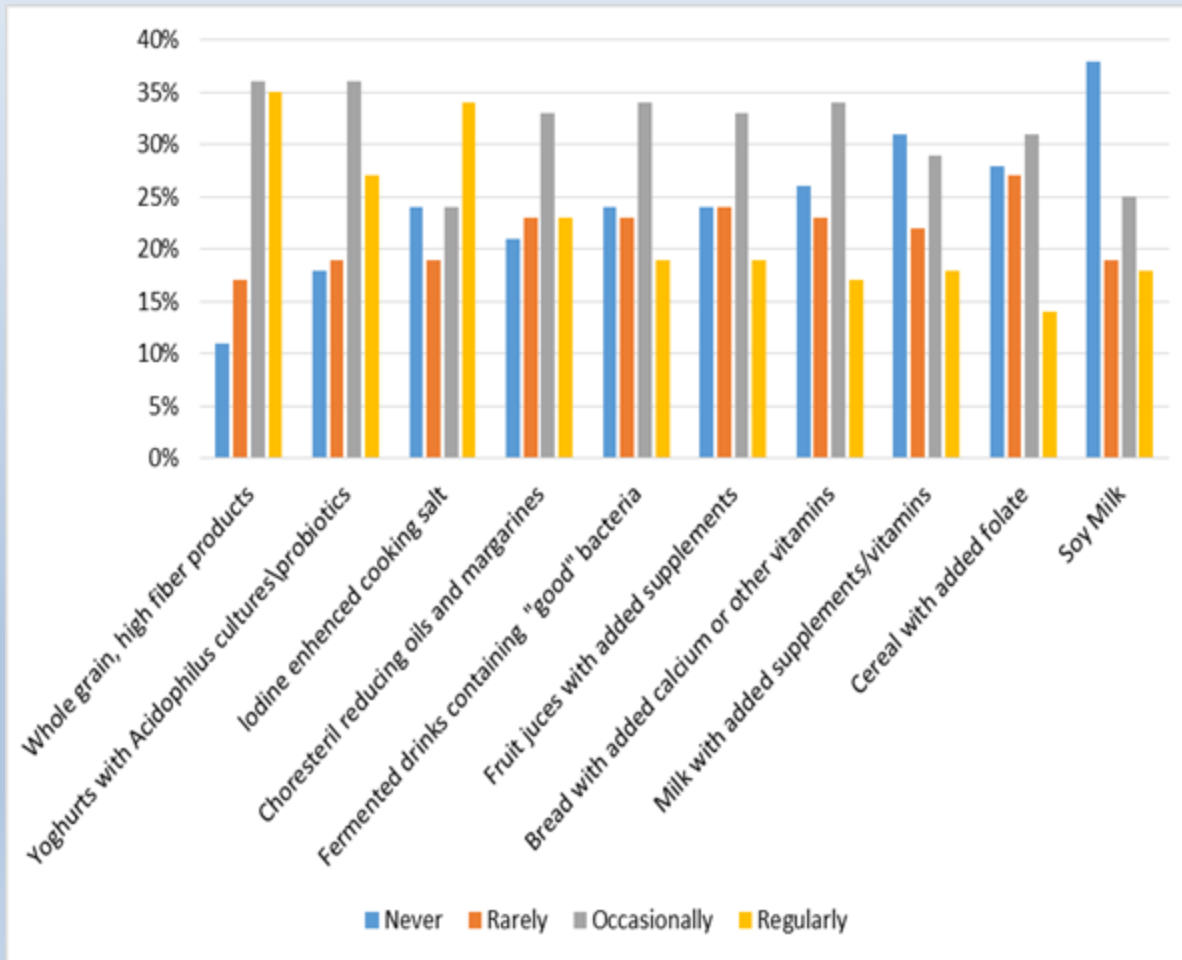
Functional Foods – Food Industry

- Functional foods have been developed almost in all food industries but the main types of functional foods available on the market are:
 - Dairy
 - Soft drinks
 - Bakery
 - Meat products.

Main types of functional food on the global market

| | |
|---------------------------------|--|
| Functional food products | |
| Probiotics | <i>Lactobacillus spp., Bifidobacteria spp.</i> |
| Prebiotics | inulin, fructo-oligosaccharides, galacto-oligosaccharides, soya-oligosaccharides, xylo-oligosaccharides, isomalto-oligosaccharides, pyrodextrins |
| Functional drinks | weight control/nutrition beverages, energy drinks, sports beverages, ready-to-drink coffee/tea |
| Functional cereals | oat based products, barley based products- beta glucans |
| Functional meat | <ul style="list-style-type: none"> ✓ meat products with added functional ingredients (vegetable proteins, dietary fibres, herbs, spices,), ✓ meat products modified during processing (production of bioactive peptides during fermentation or curing) ✓ reformulated meat product - fat reduction, cholesterol reduction, reduction of sodium and nitrite levels, improvement of fatty acid composition |
| Enriched eggs | Eggs enrichment through supplementation of animal diets with functional ingredients such as LC <i>n-3</i> PUFAs, vitamin E, selenium, CLA, lutein |

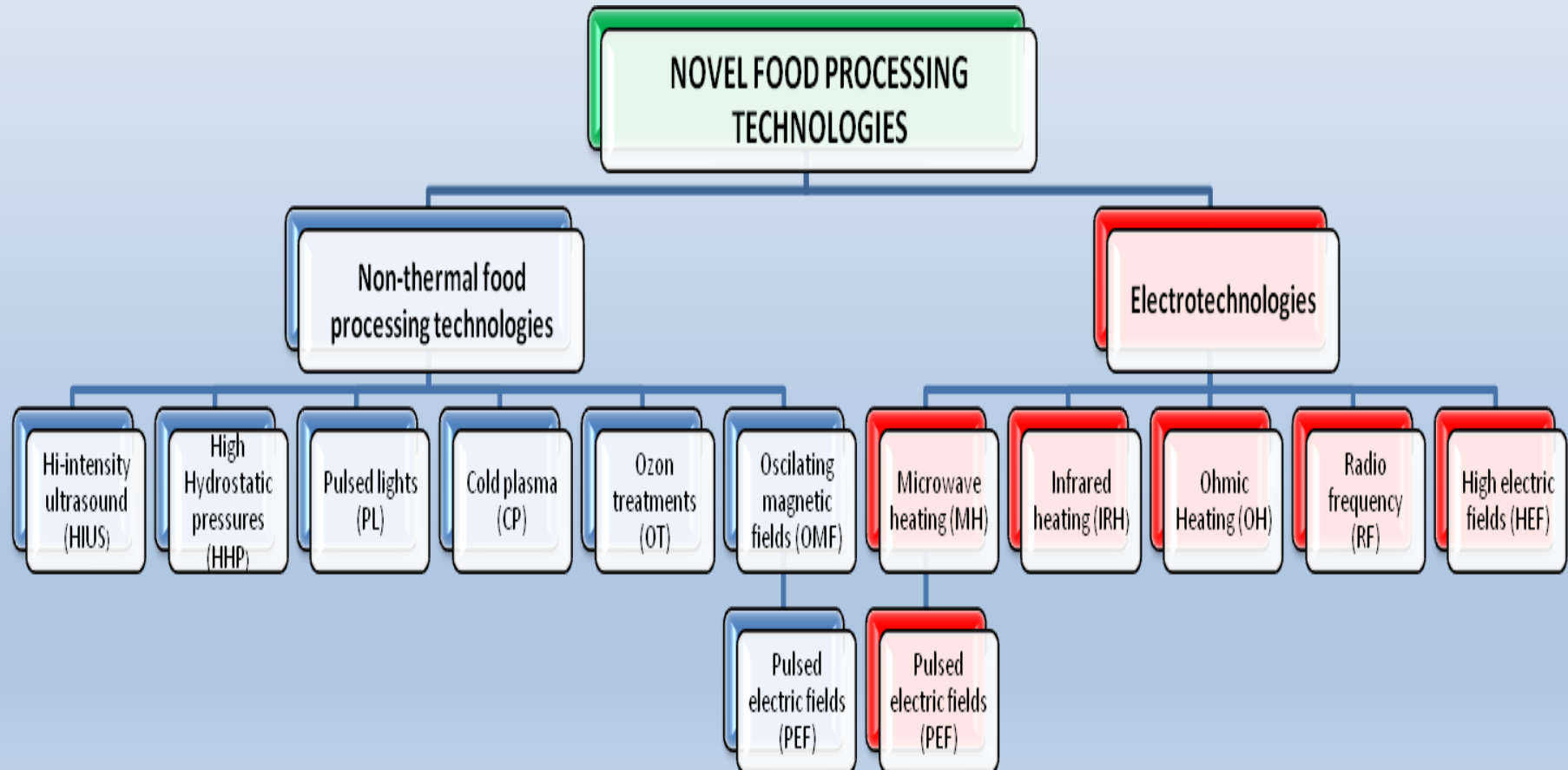
Consumer attitudes towards functional foods



How frequently consumers purchase foods that promote specific health benefits (Nielsen, 2011)

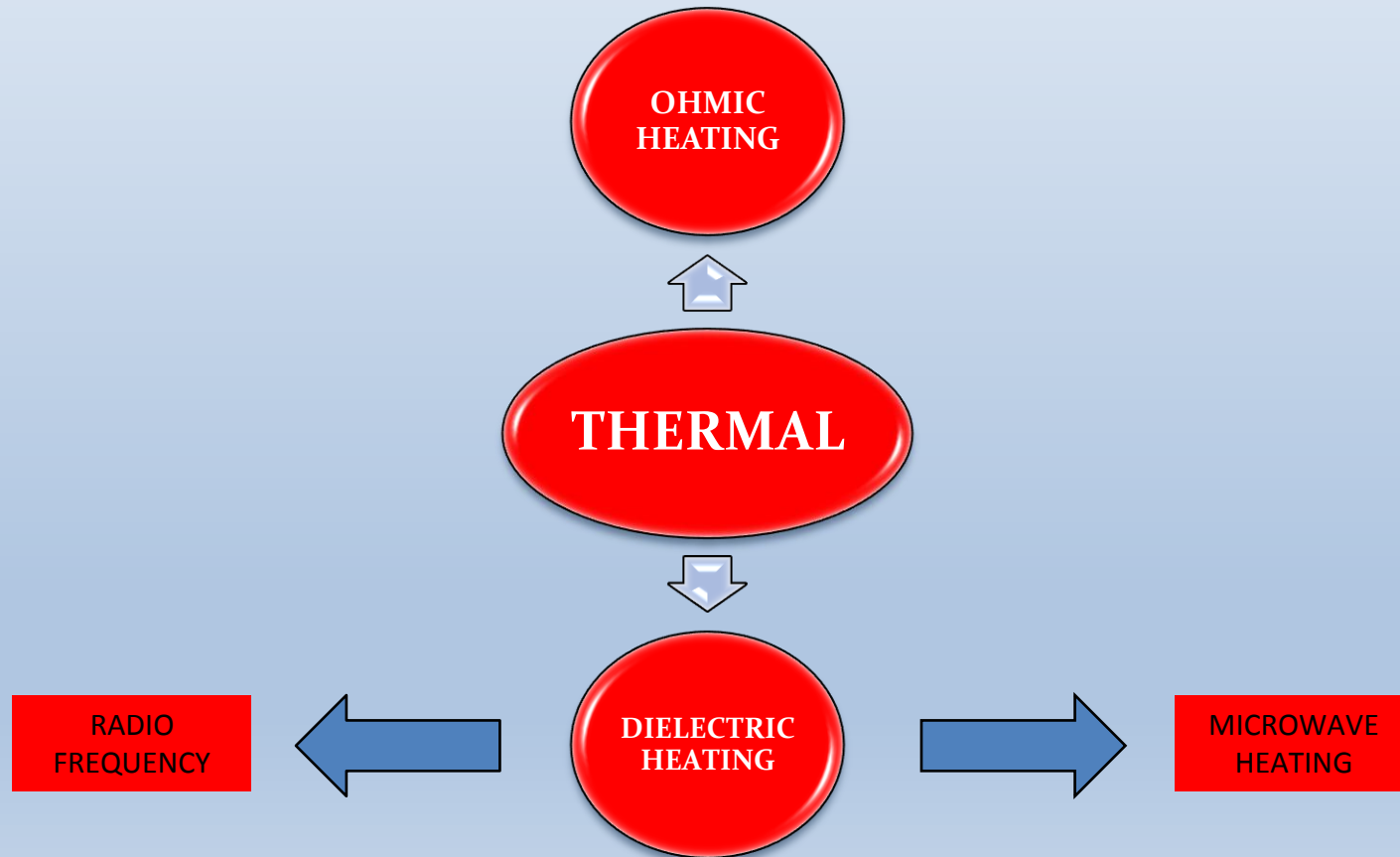
NOVEL FOOD PROCESSING TECHNOLOGIES

New trends



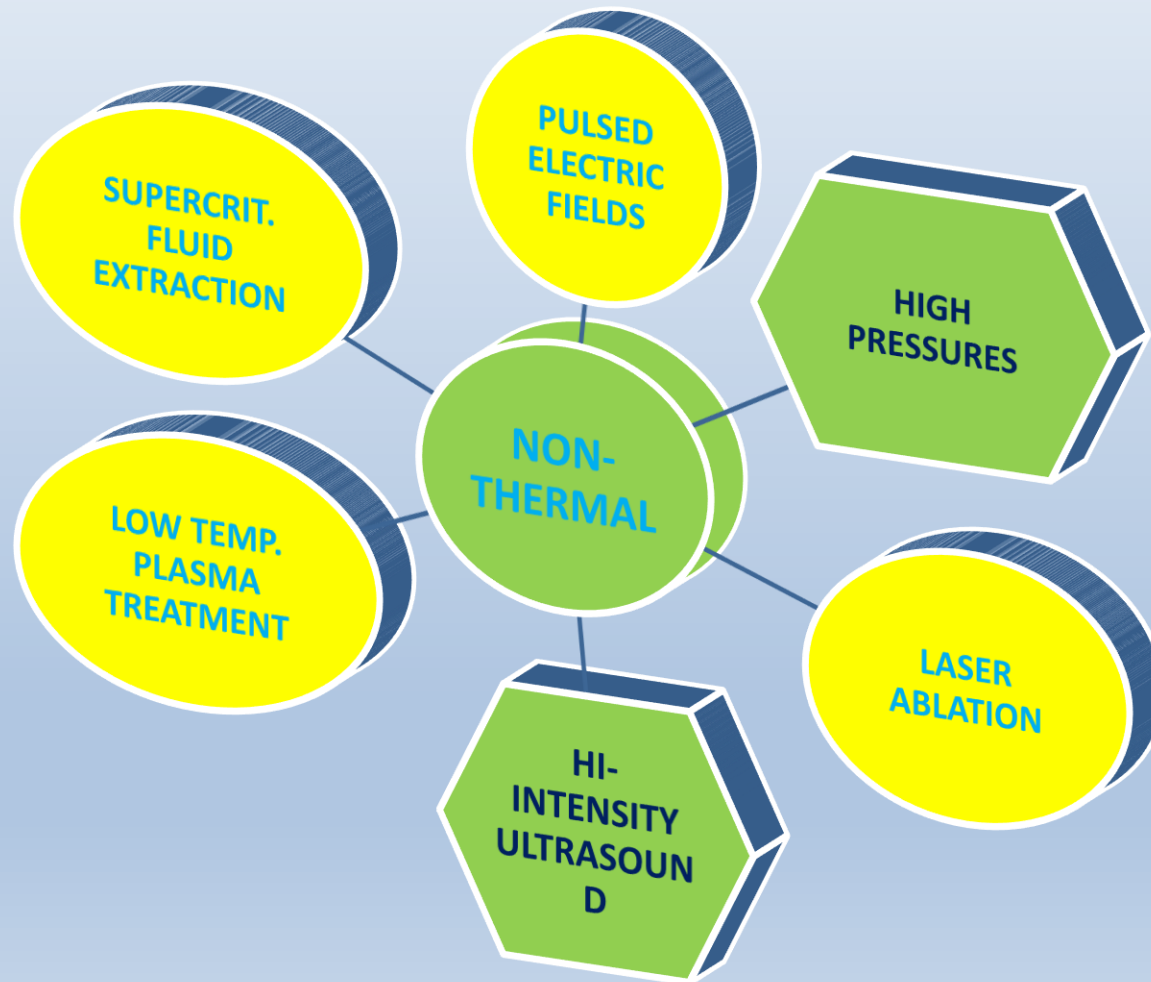
NOVEL FOOD PROCESSING TECHNOLOGIES

New trends **THERMAL**



NOVEL FOOD PROCESSING TECHNOLOGIES

New trends **NON THERMAL**



NOVEL FOOD PROCESSING TECHNOLOGIES

FOOD PROCESSING STAGES

1. Macroscopic Pretreatment

2. Macro & Micro Molecules Separation

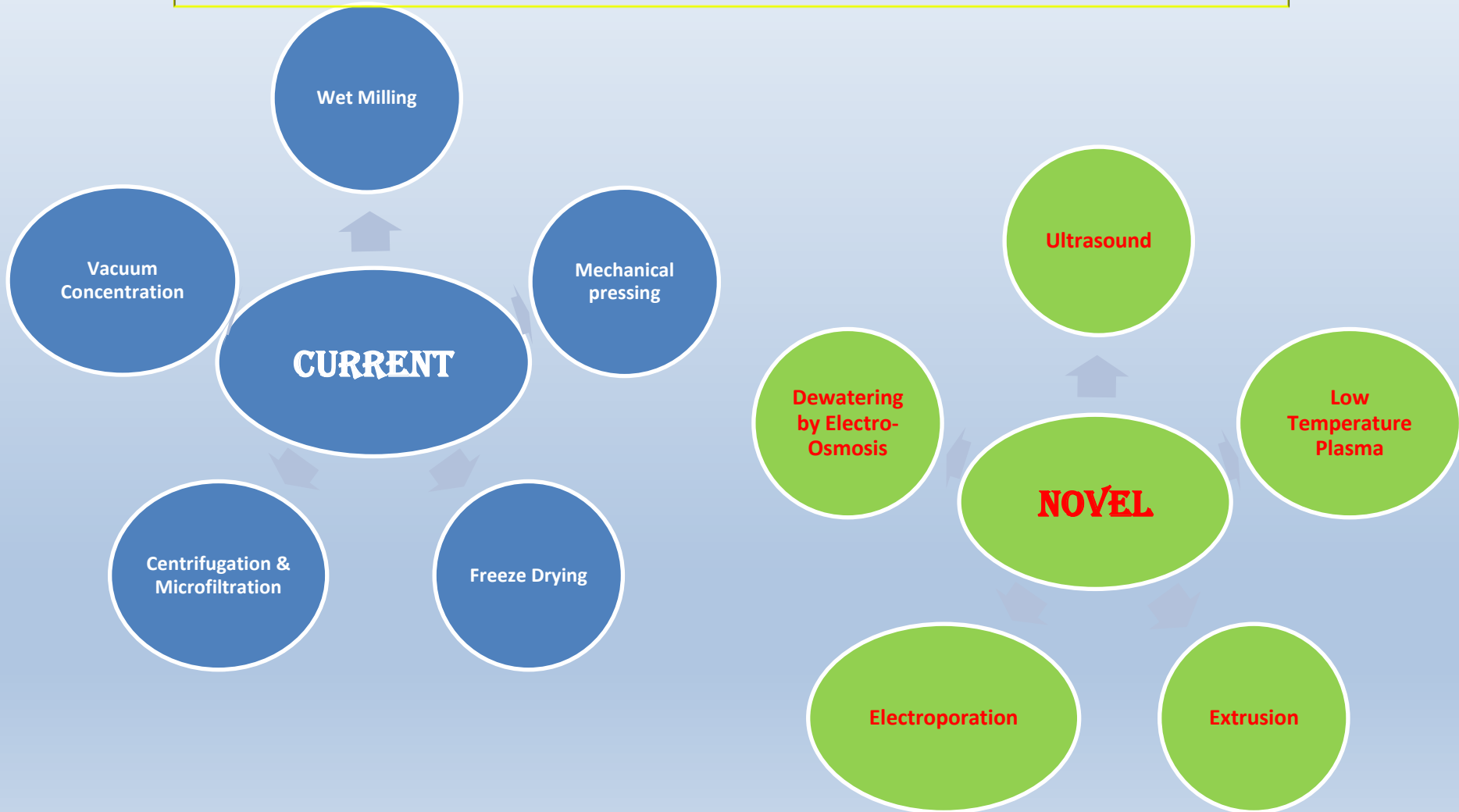
3. Extraction

4. Isolation & Purification

5. Product formation

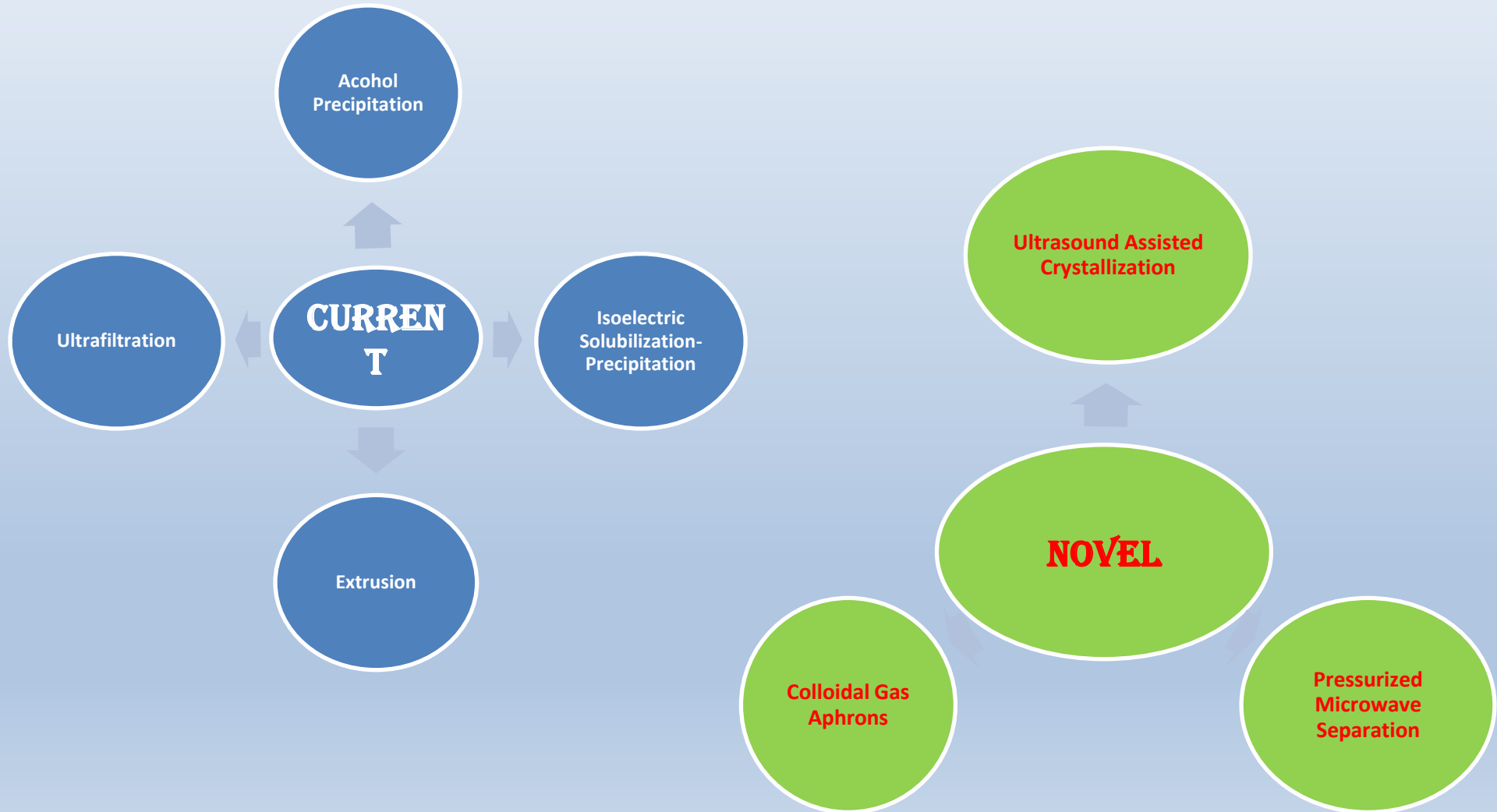
NOVEL FOOD PROCESSING TECHNOLOGIES

1. MACROSCOPIC PRE-TREATMENT



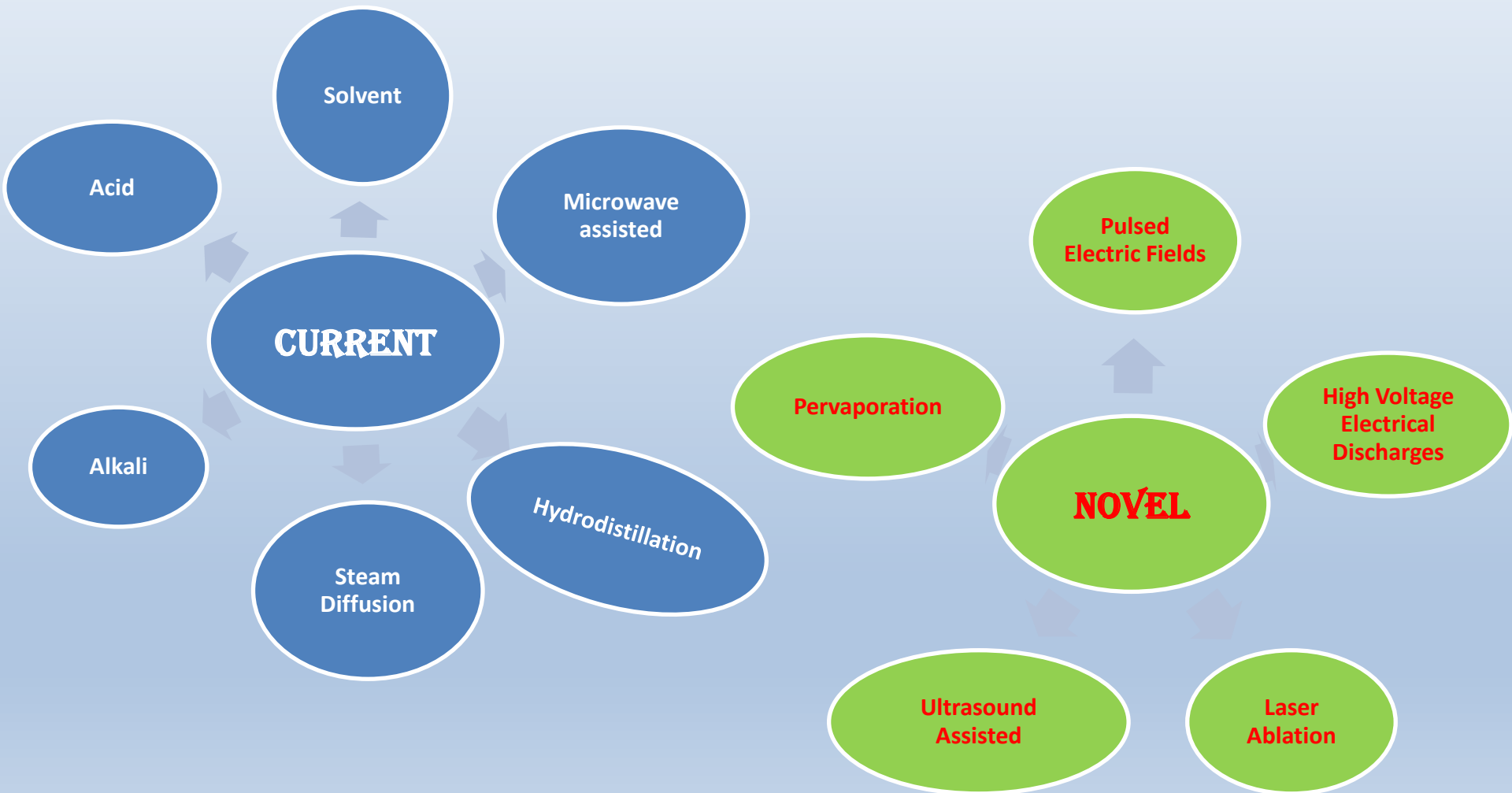
NOVEL FOOD PROCESSING TECHNOLOGIES

2. MACRO & MICRO MOLECULES SEPARATION



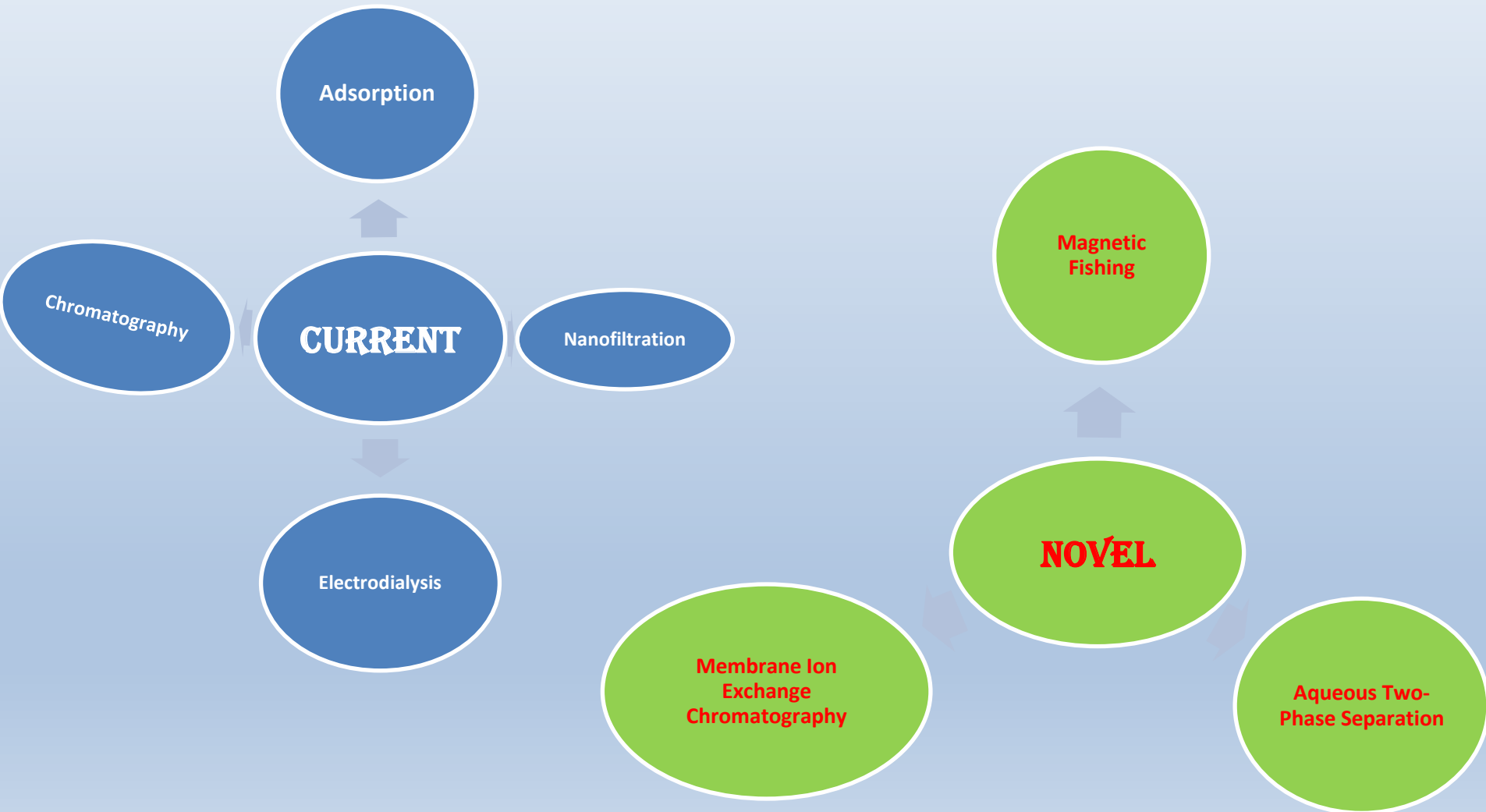
NOVEL FOOD PROCESSING TECHNOLOGIES

3. EXTRACTION



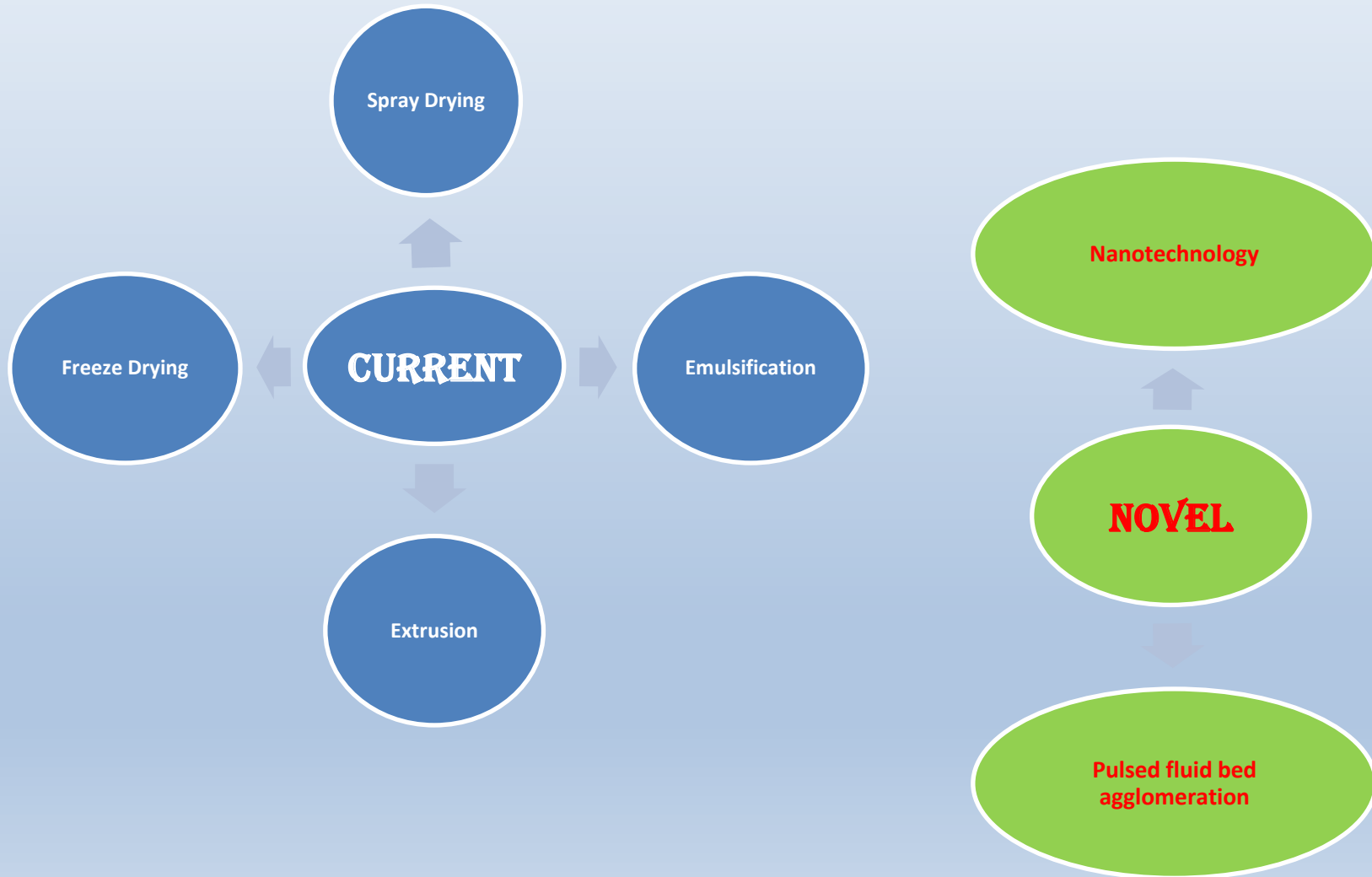
NOVEL FOOD PROCESSING TECHNOLOGIES

4. ISOLATION AND PURIFICATION



NOVEL FOOD PROCESSING TECHNOLOGIES

5. Product formation



CONSUMER ACCEPTANCE

- Consumer acceptance of functional food and novel food technologies depend on their **PERCEPTION of benefits**
- **Health benefits** the most influence public attitudes and consumer acceptance linked to functional food and novel food technologies
- The role of Government, **scientists**, the media
- Functional foods become **more familiar** over time
- Novel food processes – there has to be an **added value** to product or at least no disadvantage in comparison to a conventional process

CONSUMER ACCEPTANCE

Novel food processes

- Consumers are generally sceptical to novel food processes
- Views depend on the specific technology and the product applied to
- More suspicious towards the less familiar technologies (Ultrasound, PEF, HHP, Cold plasma)
- **If people are given an explanation of the technology and its purpose, their views tend to be more positive (Deliza et al., 2005)**

CONSUMER ACCEPTANCE

- LIMITED INFORMATION
- NANOTECHNOLOGY
- POSSIBLE CONSEQUENCES OF NEW TECHNOLOGIES
- PRICE
- BARCODE
- NUTRITIVE VALUE
- TRUST INTO MANUFACTURERS AND INSTITUTIONS

CONSUMER ACCEPTANCE

- consumers consider functional food to have benefits (health benefits, taste, price of product, convenience, appearance, nutritional quality)
- Some attitudes towards functional food vary depending on the base product, the added functional ingredient
- ***Woman and older people have more positive opinion about functional food***
- Consumption of functional food is mostly influenced by its positive effects on health

CONSUMER ACCEPTANCE

Consumer acceptance of novel food processes depend on:

- risk and benefit perceptions
- trust in food industry and regulatory bodies
- perceived naturalness, better taste, improved nutritional quality of the final food product

Existing relevant knowledge increases acceptance

Man and younger people have more positive attitudes towards novel food processes

CONSUMER ACCEPTANCE

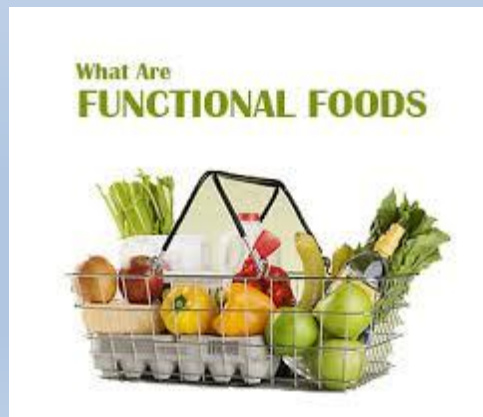
- HOW TO EMBRACE FUNCTIONAL FOODS MANUFACTURED BY NOVEL PROCESSING TECHNOLOGIES??????????

DISSEMINATION!!!!

DISSEMINATION!!!!!!

- Web platforms
- Internet education
- Webinars
- Tv
- Papers
- Radio shows
- Workshops

CONSUMER ACCEPTANCE



Thank you for your attention

