



Challenges of Incorporating Functional Ingredients into Foods - An NPD and Analytical Perspective

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Customer Focused, Science Driven, Results Led

Overview

- Introduction to RSSL
- What is meant by Functional Ingredients?
- The development brief
- Analytical considerations
- Case studies

What Do We Do at RSSL?

- We provide science and technology outsourcing to the global food, healthcare and pharmaceutical industries
- Key areas of expertise for food sector include:
 - ✓ Functional Foods & Ingredients
 - ✓ Allergens Analysis & Consultancy
 - ✓ Contaminant Investigative Analysis
 - ✓ Product Development



Definition of Functional Ingredient

Ingredients that provide some health benefit above and beyond fulfilling basic nutrition (health-promotion)

Vitamins

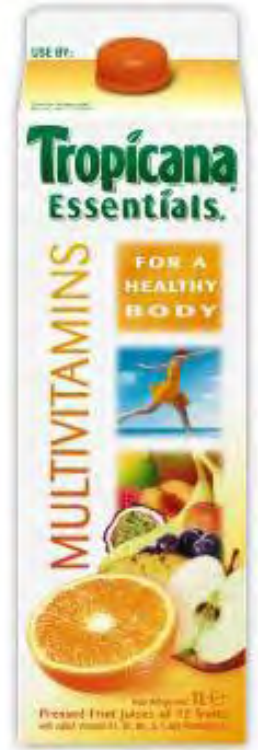
Antioxidants

Minerals

Omega-3

Proteins

Plant sterols



Challenge Your Development Brief

What

- What is the product?
- What functional ingredients are to be added?
- What claims do you want to make?
- What is the target shelf life?

Where

- Where will it be manufactured?
- Where will the product be stored?

When

- When is product due to be launched?
- When is product to be consumed? How often?

Who

- Who is target retailer?
- Who is the target consumer?

Key Challenge

Know what product you want.....

but more importantly.....

know what product you do not want

Challenges For The Developer

- Scrutinise original concept
- Sensory attributes
- Choice of ingredient(s)
- Quality of ingredient / supplier
- Active levels
- Incorporation of active/raw material
- Stability of ingredient & product
- Storage conditions
- Packaging



Why Analyse?

- Raw material assessment
- Development process
- Label claims
- Shelf life
- Troubleshooting
- Due diligence



Challenges For Analysts

- Sampling
- Stability
- Active form
- Method selection
- Extraction
- Sensitivity
- Speed, robustness



Case Study:

Omega 3 & 6 Fatty Acids

Development Challenges

- Select the optimum source of active
- Flavour selection
- Taste optimisation
- Consider how being consumed

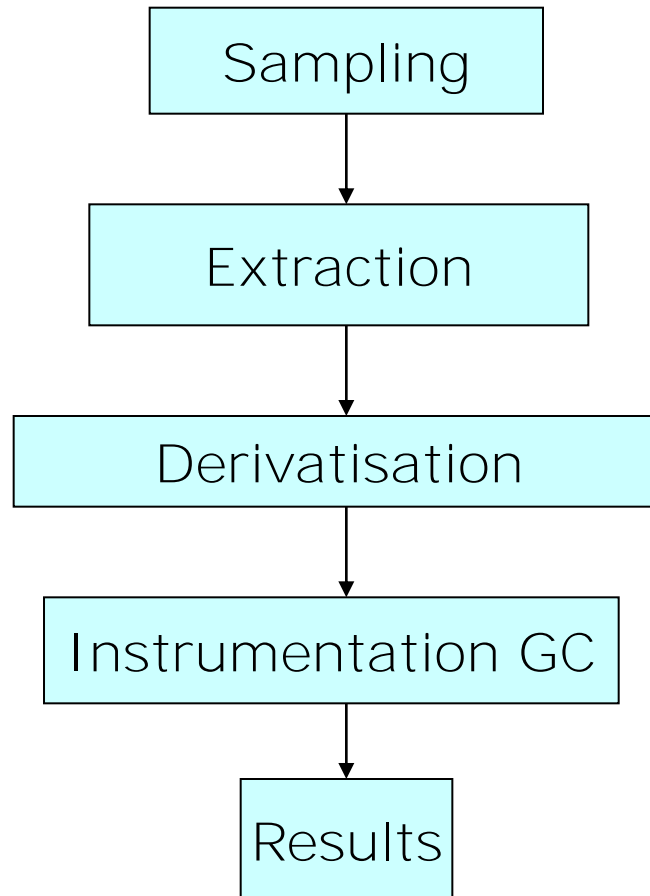


Analytical Challenges

- Source of ingredient
- Component of interest
- Is the product fortified?
- Form of ingredient
- Nature of finished product
- Ingredient stability



Outline of Method



Case Study:

Botanicals

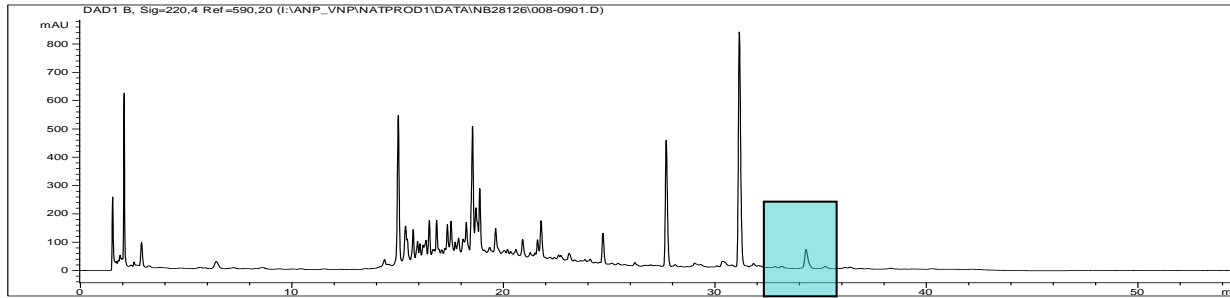
Challenges

- Are you claiming an amount of active or plant extract?

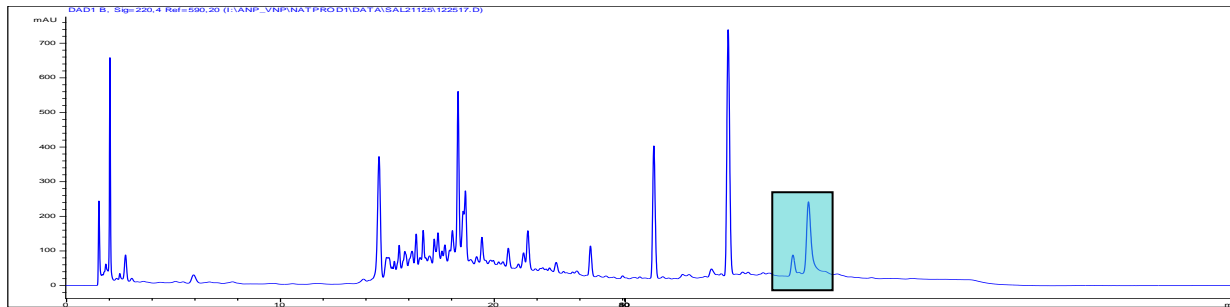
Botanical	Active
Green Tea	Catechins
Guarana	Caffeine
Echinacea	Chlorogenic acid
Pomegranate	Ellagic acid
Soy	Isoflavones
Ginseng	Ginsenosides

- Are you are looking at a mixture of botanicals?
- Carotenoids methodology vs forms
- Stability of active

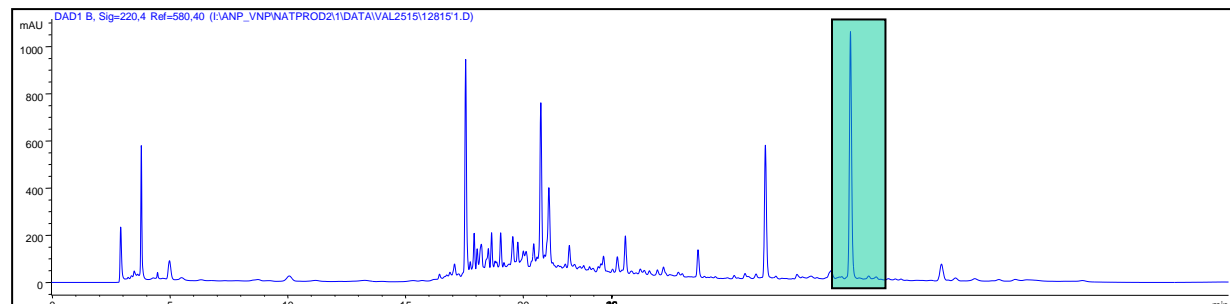
Example of Chromatography Of Markers Used For Stability



24 months



12 months



0 months

Lots to consider to ensure a successful product...



Get The Most Out Of Your NPD Team

Development Support:

- Ensure development brief is very specific and achievable
- Incorporate the correct amount of ingredient to make any claims
- Start analytical validation and checking at the earliest point possible



Get The Most Out Of Your Analyst

Analytical Support:

- Consult at early stage
- Check method available
- Ingredient details
- Product information
- Homogenous sample
- Transport of sample
- Manufacturing process



Ensure your expectations.....
and the abilities of your partner organisation.....
are matched

Future Challenges

- New forms of ingredients
- Legislation changes
- New products
- Increased dosage
- Combinations of ingredients
- Method developments
- Media attention



Any Questions?

Thank You For Your Attention

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