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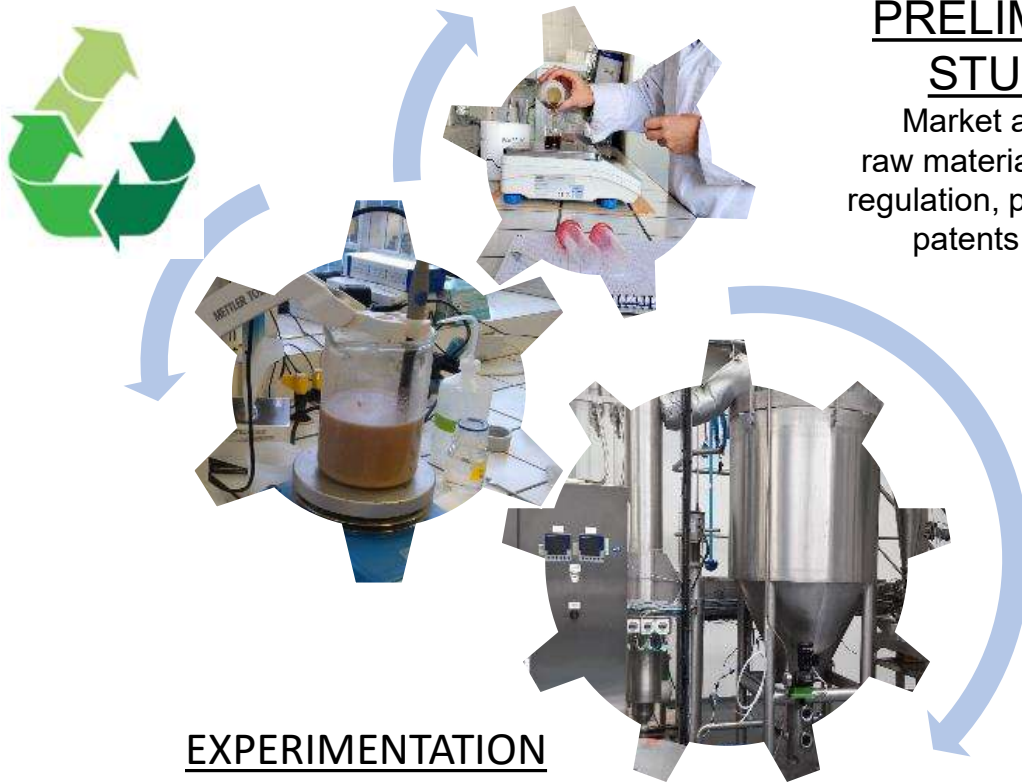


# Regulation and policies for byproducts processing into new products

26/09/2024

**Mathilde Coquelle**

PROCIDYS - 1 Avenue de la Manche - 62930 WIMEREUX – [mcoquelle@procidys.fr](mailto:mcoquelle@procidys.fr)



## PRELIMINARY STUDIES

Market approach,  
raw material evaluation  
regulation, publications &  
patents analysis

## EXPERIMENTATION

Process development at lab scale  
Pilot-scale testing  
Industrial scale-up

=> process, flow sheet, yields, samples

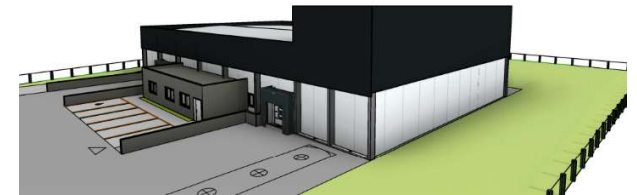
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## PROCIDYS

- Consulting and R&D company
- 4 engineers
- 2 sites (Wimereux + Brittany)
- 20 projects/year

## INDUSTRIAL PROJECT ASSISTANCE

Study of equipment - Layout plans  
Investment costing (CAPEX)  
Study of production costs –OPEX)  
Business plan  
Approvals  
Start-up and commissioning



# Many possible applications for fish byproducts



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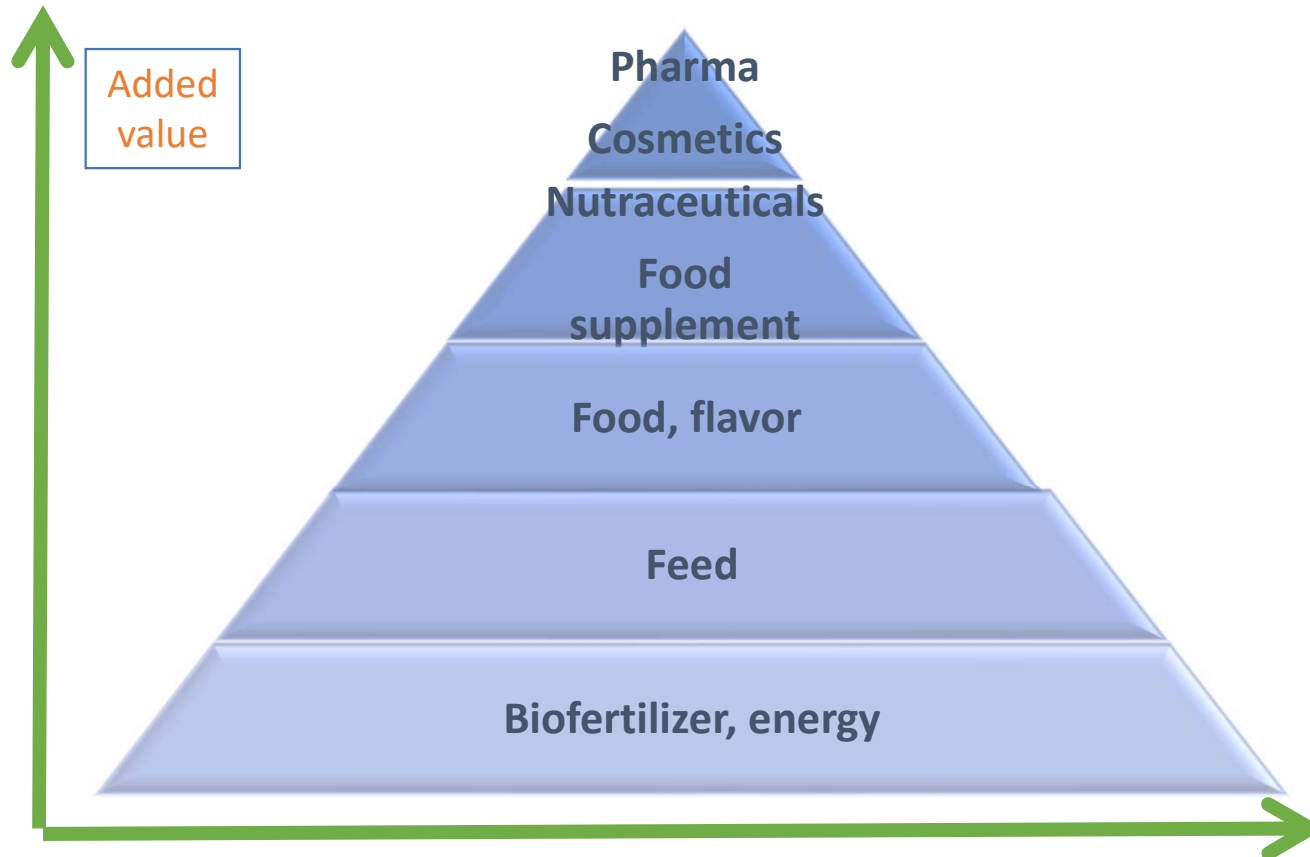
FISH PROCESSING



Byproducts (heads, bones, viscera...)



Food products  
→ fillets...



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- **DEFINITION**

- COPRODUCT : no definition in regulation
- Waste (directive 2008/98/CE)
- Biowaste (in France: article L.541-21-1 of environmental regulation – Agec law)
- Animal by-products (R EC 1069-2009 & 142/2011)
  - Category 1
  - Category 2
  - Category 3

→ **An APPROVAL** required for their processing into new products

Including for their transport and storage



- **PROCESSING**

- Approval of the plant
- HACCP
- ATEX
- « ICPE » classified installations for the protection of the environment
- Label (Organic, sustainable)



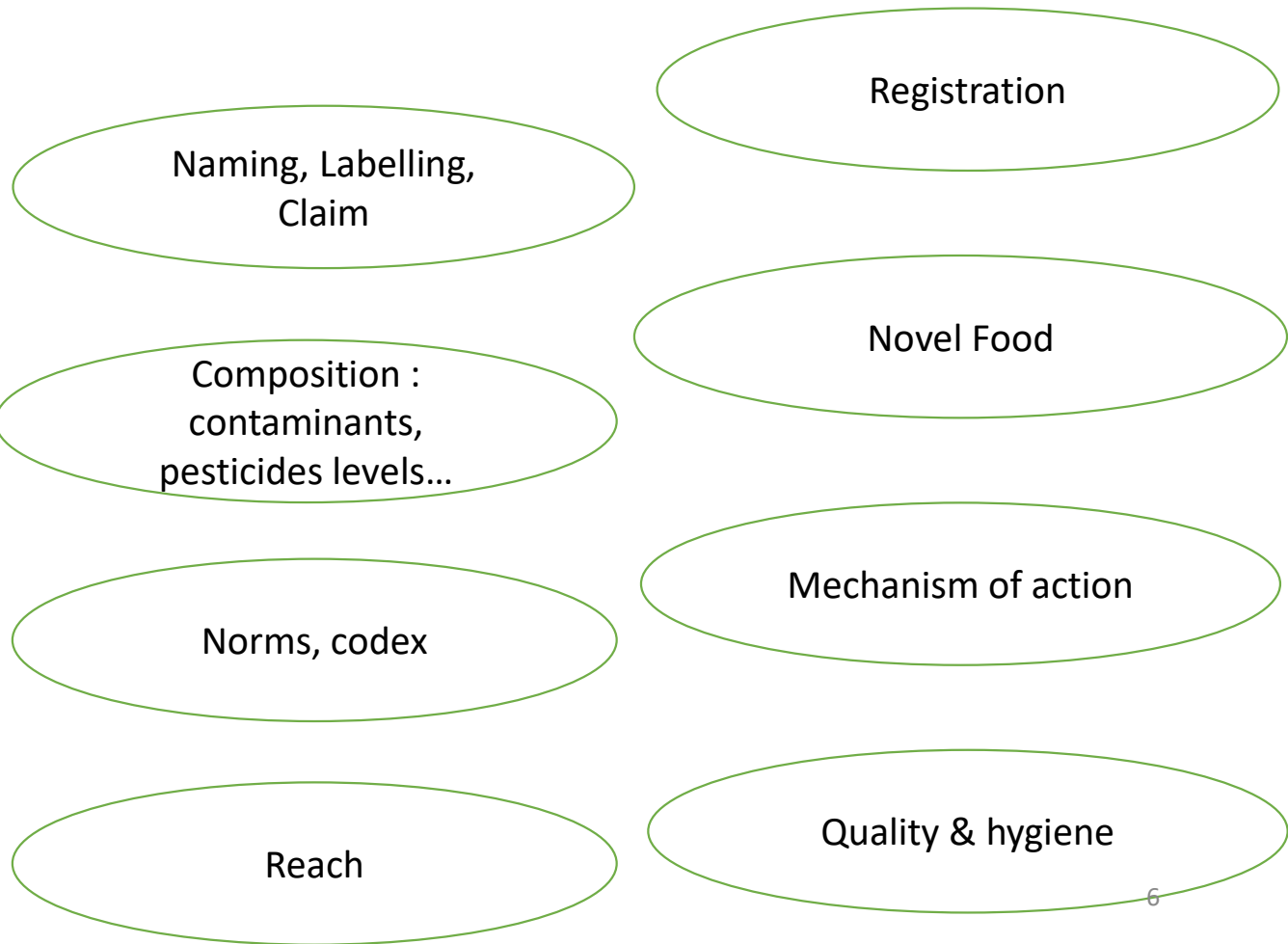
- **MARKETING**





- **EACH MARKET HAS ITS OWN REGULATION !**

- Cosmetics
- Nutraceuticals
- Food
- Petfood
- Feed
- Fertilizers



Example of application:

A collagen extracted from fish skin sold as an ingredient for anti-aging moisturizer

- REC 1223/2009 on cosmetic products
- Guidance notes from the SCCS (European Scientific Committee on Consumer Safety) on cosmetic ingredient testing and safety assessment
- CAS registration number assigned by the US Chemical Abstracts Service
- INCI (International Nomenclature of Cosmetic Ingredients)



*Conservateurs et allergènes / Preservatives and allergens*

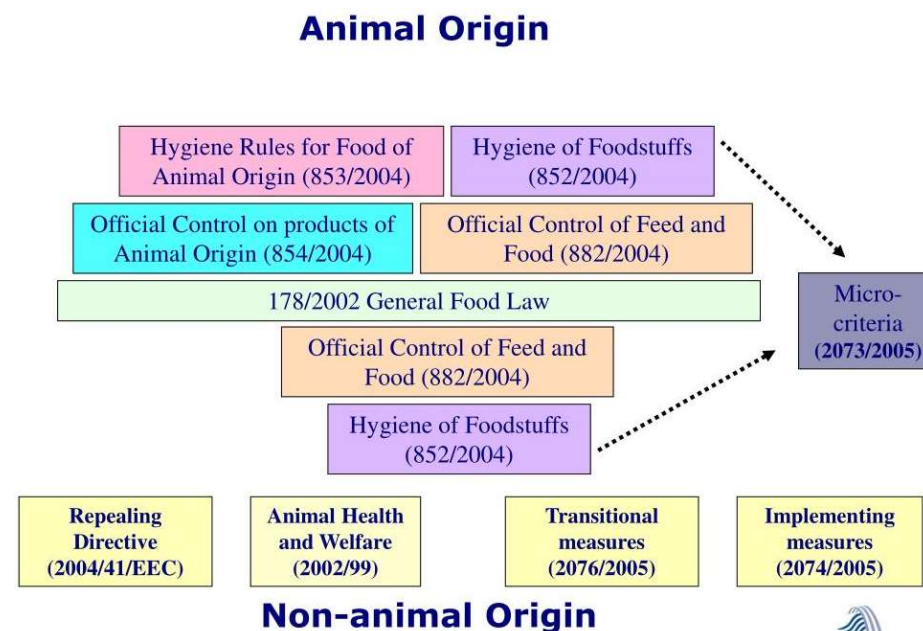
Conforme à la réglementation relative au règlement CE N°1223/2009 du parlement et du conseil européen  
 Conform to the EC regulation N°1223/2009 of the Parliament and European Council.

Substance	N° CAS	Results (%)	LQ* (mg/Kg)	Method
Amyl Cinnamal	122-40-7	<LQ	5,0	GS/MS
Benzyl Alcohol	100-51-6	<LQ	5,0	GS/MS
Cinnamyl Alcohol	104-54-1	<LQ	5,0	GS/MS
Citral A + Citral B	5392-40-5	<LQ	5,0	GS/MS
Hydroxycitronellal	107-75-5	<LQ	5,0	GS/MS
Eugenol	97-53-0	<LQ	5,0	GS/MS
Isoeugenol	97-54-1	<LQ	5,0	GS/MS
Amylcinnamyl alcohol	101-85-9	<LQ	5,0	GS/MS
Benzyl Salicylate	118-58-1	<LQ	5,0	GS/MS

## Example:

An aroma powder extracted from crab shells sold as an ingredient for soups

- Quality
  - Microbiology (REC 2073/2005)
  - Food law (REC 178/2002 and 852/2004)
  - + for animal products (853 & 854 /2004) → approval
- Labelling (REC 1169/2011)
- Contaminants (REC 1881/2006)
- Pesticides (REC 396/2005)
- Standards, codex alimentarius, Good practices
- Labels
  - Organic products REC 2018/848,
  - sustainability





### Example of application:

A peptide extracted from fish meat sold as an ingredient with anti-stress effect

- Quality requirements: such as for food products
- Novel food (REC 2015/2283 – 2017/2470 – 2020/1824 – 2017/2469)
  - « food that had not been consumed to a significant degree by humans in the EU before 15 May 1997»
  - = new foods, new sources of food components, foods produced using new methods
  - authorization after submission of an application & examination of the scientific dossier by EFSA
- Claims
  - REC 1924/2006 on voluntary nutritional and health claims on food and food supplements
  - REC 353/2008 & 1169/2009 → rules for applications for authorization of health claims



Example of application:

Fishmeal or hydrolysate extracted from fish heads and bones sold as an ingredient for aquaculture

- Catalogue of feed materials (REC 2022/1104)
- For animal by-products, need for approval and requirements on collection, transport and processing and applications (REC 1069/2009 - **142/2011** - 2017/893 )
- Contaminants: dioxins (1259/2011) and PCBs (277-2012)
- Hygiene (183/2005)
- Placing on the market and use of animal feed (767/2009)



### Example of application:

A fish protein hydrolysate sold as biostimulant with protective effect against water stress in tomato plants

- Various products: Amendments, Fertilizers, Biostimulants
- In France:
  - AFNOR standards (ex NFU 042 – 044 in France)
  - Marketing authorization – after completion of scientific dossier with proof of safety or efficacy for biostimulants
- Rules for making fertilizers available on the EU market (1009/2019)
  - Contaminants levels
  - Names / Classification
  - Demonstration of efficacy
  - Certification
- Organic farming regulation



Credit photo: végénov



## By-product

- Volume
- Composition
- Quality
- Localisation
- Price/cost
- **Regulation** (handling)



## Process

- Steps
- Capacity
- CAPEX
- OPEX
- Mutualization
- **Regulation** (process conditions)



## Final products

- Market: size, evolution, price, **regulation** (application, labelling, composition...)
- Marketing: approval, R&D, commercial development, sales

Many regulations related to by-products and their applications

- Some can be sticking point
- Regulation has to be studied ahead of a project
- Policies can evolve (exemptions, updates)





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[mcoquelle@procidys.fr](mailto:mcoquelle@procidys.fr)