

ainia

Cosmetics Sector

INNOVATION SOLUTIONS



ainia, where innovation meets continuous improvement and corporate competitiveness

At AINIA we provide our clients with differentiated, innovative and technologically rigorous solutions for the **cosmetics**, chemical, pharmaceutical, food and packaging industries.



35 years of experience

Our technology centre has been developing technological solutions for over 35 years by cooperating with agents from the entire innovation ecosystem.



753
member
companies



1.600
annual
clients

As a partner in developing R&D&I initiatives, we support companies from the initial idea to industrial production.

We provide custom-designed, personalised solutions according to the company's business strategy and needs. To do so, our multidisciplinary team of experts puts its comprehensive knowledge and expertise at the companies' service.



16.500
m² dedicated to innovation

We allocate our facilities to innovation, in the Technology Park of Paterna (Valencia) with cutting-edge technological equipment. This includes laboratories, as well as 21 pilot plants specialised in innovative technologies.

In **ALTEX**, our industrial plant for extraction with supercritical CO₂, we obtain natural extracts, oils, and other products without solvents. These products are safe and innovative, and the facilities are Eco, Halal and GMP certified.



Our Innovation Solutions

At AINIA we offer solutions to meet the challenges of the cosmetics sector and meet consumer expectations

- 1 **Cosmetic Ingredients and Active Principles**
- 2 **Product Efficacy**
- 3 **Product Safety, Stability and Quality**
- 4 **Cosmetic Packaging**
- 5 **Consumer Experience**
- 6 **Digital and Industry 4.0**
- 7 **Industrial Production (Altex)**
- 8 **Comprehensive Consultancy**



1 Cosmetic Ingredients and Active Principles



We research and develop sustainable processes to obtain and produce active and technological ingredients, as well as fragrances and other cosmetic formulation components



- **Active ingredients:** peptides, pre-/pro-/post-/parabiotics, natural extracts, bacteriocins and enzymotics.
- **Natural plant extracts obtained with clean technologies:** oils, fragrances, pigments, botanical extracts, etc. ...
- **Bio-based ingredients:** obtained by fermentation processes, cellular agriculture, enzymatic hydrolysis, microalgae and other green biomasses.
- **Upcycling:** Recovering beneficial ingredients from by-products.
- **Customised microencapsulation solutions:** ingredient protection, controlled and/or targeted release. Screening and discovery of new active substances.
- **Development and design of new cosmetic ingredients and active ingredients using computational tools.**

2 Product Efficacy



We conduct *in vitro* efficacy studies using advanced techniques in cosmetic products for topical application and oral supplements (nutricosmetics)

- **Application of cellular techniques and tissue engineering:** generation of complex cellular models (keratinocytes, fibroblasts, melanocytes...) for evaluating bioactive ingredients used in topical applications.
- ***In vitro* dynamic digestion:** Bioaccessibility and bioavailability studies of nutricosmetics and active ingredients.
- **Efficacy studies:** Studies on healing, anti-ageing, whitening properties, anti-inflammatory properties, antioxidant properties, prevention of psoriasis/atopic dermatitis and effect on cutaneous/oral microbiota.
- **Functional studies using omics technologies:** expression of biomarkers in tissue.
- **Development of advanced *ad hoc* models** with co-culture techniques, OoC (organ-on-chip) and 3D bioprinting of cells and tissues.
- **Scientific substantiation** of claims in labelling.

3 Product Safety, Stability and Quality



We develop prevention and detection strategies to guarantee **microbiological stability, safety and resistance to microorganisms or potential contamination of cosmetic products**



- Strategies for the **hygienic design of facilities and equipment** to prevent sources of contamination.
- Design and optimisation of **cleaning and disinfection procedures**.
- **Microbiological tests:** *Candida albicans*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, moulds and yeasts, *mesophilic aerobes*, *E. coli*, *Burkholderia cepacia*.
- **Stability studies and Challenge tests** (ISO and Pharmacopoeia).
- **HPLC analytical methodologies for active ingredients and cosmetic products**.
- Cosmetic-packaging interaction studies: global and specific migration.
- Development of customised techniques for rapid detection of contamination and alterations.
- **Microbiological risk prediction in products and facilities**.

4 Cosmetic Packaging



We are specialists in developing new sustainable packaging and materials for primary and secondary packaging

- **Packaging ecodesign** (primary and secondary). Packaging prototype of solutions.
- **Production of new functional materials** and coatings.
- **Improvement of recyclability** and/or biodegradability/compostability.
- **Packaging-cosmetic interaction studies:** global and specific migration.
- **Characterisation of packaging materials.**



5 Consumer Experience



We are specialists in product innovation from the end user's perspective



- **Product co-creation and innovation** with consumers during the conception or redesign phase.
- Concept, usage and acceptance testing.
- **Product perception** evaluation through customised sensory studies.
- **Expert sensory panels** for formulation changes.
- Cosmetic packaging assessment.
- **Emotional perception in cosmetics:** non-invasive and multidimensional focus in combination with traditional research.

6 Digital and Industry 4.0



We are specialists in the development of customised technological solutions



- **Digital solutions for production:** in-line quality control through advanced vision and sensor technology, process optimisation.
- **Digital solutions for product innovation:** : monitoring the competitive environment and identifying opportunities (iWatch, cWatch), design and management of new product development.
- **Collaborative platforms and value chain management** (ProductSphera).
- **Diagnosis, prediction and simulation processes.**
- **Advanced vision technologies** for production and quality improvement.
- **Sensorics, Robotisation and Automation** of processes.



7 Industrial Production (ALTEX)



ALTEX is our industrial processing facility with supercritical CO₂ technology. This is an innovative, efficient, and solvent-free process and clean technology



- **Selective and natural extraction of high-value and highly concentrated active compounds from natural sources:** botanical extracts, essential oils, seed oils, butter, etc.
- **Treatment of ingredients:** purification and elimination of traces of unwanted substances present in the product.
- **Reduction of microbiological contamination:** effective in thermosensitive or oxidisable compounds.
- **Compound fractionation.**
- **ECO (BIO), COSMOS and GMP.**
- **Industrial processing capacity.** 1000 L capacity extractors that allow obtaining a wide range of applications.

8 Comprehensive Consultancy



Multidisciplinary team has extensive knowledge of legislative, regulatory and process matters



Cosmetic regulation

- **Legal advice on the production** and marketing of cosmetic products.
- **Legal advice on labelling, claims and packaging.**
- **Services of tracking** and anticipation of regulations.
- **Identification of emerging risks and early warning detection** to help companies anticipate regulatory changes.
- **Early warning detection system.**

Sustainability

- **Upcycling:** development of ingredients and packaging from by-products or compounds derived from the production process.
- **Process sustainability:** Reduction of water, raw material and energy consumption. Recycling of process water...
- **Life cycle and environmental footprint analysis.**

Your partner in innovation and technology



Cosmetics Sector



AINIA is committed to the Sustainable Development Goals



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 Recycled material and biodegradable inks