

# New biobased fertilizers with capacity as biostimulant

## Main results / outcomes

Fertinagro Biotech conducts a physicochemical analysis of the intermediate products produced at AZTI and BARNA (fish protein hydrolysates) and NEIKER (hydrolysed microalgae biomass) to assess their potential as components for bio-stimulant fertilizer formulations. After observing a high potential in the received products, five specific products are proposed to target a market identified as promising by Fertinagro Biotech:

1. Fertilizer with organic matter, amino acids and humic acids.
2. Solution containing nitrogen, phosphorus, potassium, and amino acids.
3. Foliar application fertilizer with high nitrogen and amino acid content.
4. Foliar application fertilizer with organic matter, humic extract, and amino acids.
5. Fertilizer with microalgae and including humic acids.

## Practical recommendations

During the development process of various fertilizer compositions, special attention was given to the rheological properties of the intermediate products produced by Azti-Barna. This consideration stemmed from the fact that farmers don't always have handling and transfer systems comparable to those in an industrial setup. It's crucial to ensure that the formulations can adapt to practical conditions under which farmers operate, without relying on complex handling systems typically found in industry. The products that have been designed are prepared to meet the needs of any type of crop, from a vegetable to an herbaceous plant to a woody crop.

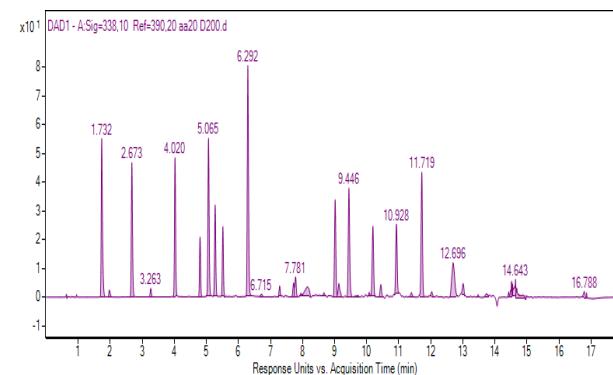


Fig. 1: Aminogram of fertilizer



Fig. 2: Fertilisers production plant (FERTINAGRO)

## About this abstract

**Authors:** Joaquin Romero/FERTINAGRO. Carlos Bald/AZTI ; Iñaki Aramburu/BARNA;

**Date:** December 2023

**SEA2LAND** project is a collaborative Innovation Action(IA) funded by the EU in the frame of the Horizon 2020 programme. The project aims to provide solutions to help overcome challenges related to food production, climate change and waste reuse. Based on the circular economy model, SEA2LAND promotes the production of large-scale fertilizers in the EU from own raw materials. This solution is expected to reduce the soil nutrient imbalance in Europe.

The project is running from January 2021 to December 2024.

**Website:** [www.sea2landproject.eu](http://www.sea2landproject.eu)



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# Nuevos fertilizantes biobasados con potencial como bioestimulantes

## Principales avances/resultados

Fertinagro Biotech lleva a cabo un análisis físico-químico de los productos intermedios producidos en AZTI y BARNA (hidrolizados de proteína de pescado) y NEIKER (hidrolizados de microalgas) para evaluar su potencial como componentes de formulaciones de fertilizantes bioestimulantes. Tras la observación de un alto potencial en los productos recibidos, se proponen cinco productos específicos para cubrir un mercado identificado como prometedor por Fertinagro Biotech:

1. Fertilizante con contenido de materia orgánica, aminoácidos y ácidos húmicos.
2. Disolución que contiene nitrógeno, fósforo, potasio y aminoácidos.
3. Fertilizante de aplicación foliar, con elevado contenido de nitrógeno y aminoácidos.
4. Fertilizante de aplicación foliar, con contenido en materia orgánica, extracto húmico y aminoácidos.
5. Fertilizante que incluye microalgas y ácidos húmicos.

## Recomendaciones prácticas

Durante el proceso de desarrollo de las diversas composiciones de fertilizantes, se prestó especial atención a las propiedades reológicas de las materias primas recibidas de Azti-Barna. Esto se debió a la consideración de que los agricultores no siempre cuentan con sistemas de manejo y trasvase comparables a los de una instalación industrial. Es crucial asegurar que las formulaciones sean adaptables a condiciones prácticas en las que los agricultores operan, sin depender de sistemas de manipulación complejos propios de la industria.

Los productos que se han diseñado están preparados para suplir las necesidades de cualquier tipo de cultivo, desde un producto hortícola hasta un herbáceo pasando por un leñoso.

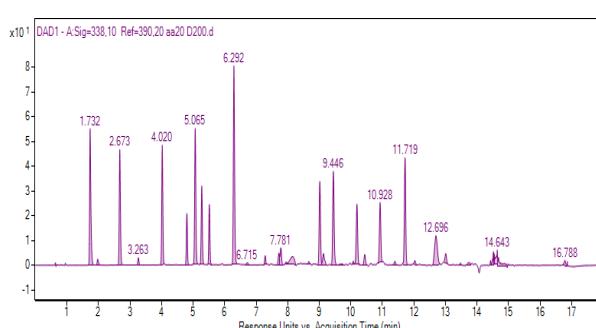


Fig. 1: Aminograma de un fertilizante



Fig. 2: Planta de producción de fertilizantes (FERTINAGRO).

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