

FUNDING PROGRAMME: PNIII-European and International Cooperation

SUBPROGRAM: 3.5 - Other European and international initiatives and programs - EUREKA Projects Traditional



The EUREKA Network Application E!12610 FERTI-MAIZE has been awarded the EUREKA label

Wednesday, June 5, 2019



Dear Applicant,

The EUREKA Secretariat is pleased to inform that the EUREKA Network project E!12610 FERTI-MAIZE has been awarded the EUREKA Label on 05/Jun/2019.

PROJECT TITLE/ACRONYM: Innovative foliar fertilizers obtained from protein by-products, used in corn cultivation, FERTI-MAIZE, E! 12610

CONTRACT NO.: 127/2020

TOTAL PROJECT BUDGET: 2115500 lei/ 423100 euro

INCDTP'S BUDGET: 750000 lei/150000 euro

PROJECT STARTING DATA: 01/01/2020

PROJECT ENDING DATA: 31/12/2022

PAGINA WEB: <https://www.probstdorfer.ro/proiect-ferti-maize-ro/>

PARTNERS:

Probstdorfer Saatzucht Romania –Coordinator

INCDTP-Division ICPI -Partner 1

KORTAN, spol. s r.o., Republica Ceha- Partner 2

Tomas Bata University in Zlin- Partner 3



**KORTAN,
spol. s r.o.**

[https://www.edb.eu/
czech-firm-246961-
kortan-spol-s-r-o](https://www.edb.eu/czech-firm-246961-kortan-spol-s-r-o)
Czech Republic



GENERAL OBJECTIVES:

Development of new foliar fertilizers and technologies for treating corn crops, based on amino acids derived from keratin and collagen hydrolysate, with the aim of increasing production per unit area, quality indices, as well as resistance to drought, diseases and pests of corn crops.

SPECIFIC OBJECTIVES/ EXECUTION PHASES:

- ▶ development of technologies for the production of protein additives based on keratin and collagen of animal origin;
- ▶ creation of bioactive additives based on keratin and collagen for applications in foliar treatment of corn crops;
- ▶ monitoring of quality indicators for newly created bioactive additives based on keratin and collagen;

- ▶ laboratory testing of new keratin and collagen hydrolysates and selection of those that will be tested in the field;
- ▶ sowing of research lots, in a randomized micro- and macro-plot system, in two locations in southern Romania (Modelu – Calarasi County and Calomfiresti – Teleorman County);
- ▶ carrying out treatments and monitoring corn crops during each vegetation stage;
- ▶ harvesting and performing quality analyses, followed by statistical processing, to highlight the influence of the tested products;
- ▶ evaluating the effect induced by the new biostimulators through the reaction of the corn crop to biotic and abiotic stresses;
- ▶ developing technical and economic calculations in order to produce corn crops foliar fertilized with keratin and collagen additives;
- ▶ protecting intellectual property rights through two patents – one for the process of making biostimulators, the other for the new foliar fertilizer based on bioactive keratin;
- ▶ demonstrating the reproducibility of the technologies for making protein additives tested in the three years (2020-2023);
- ▶ validating the keratin-based compositions for foliar fertilization of the corn crop – characterization through physicochemical analyses;
- ▶ developing the manual and brochures presenting the new foliar fertilizer; wide dissemination of the results, through articles and participation in symposia/conferences/fairs and updating the project website.

NOVELTY ELEMENTS/ SCIENTIFIC CONCEPT:

- ▶ Production of foliar fertilizers based on bioactive proteins extracted from by-products from the leather industry and sheep farming with the potential to replace synthetic fertilizers with unfavorable environmental impact/integration into the economic circuit of protein by-products that are currently not being exploited.
- ▶ Increasing plant resistance to biotic and abiotic stress factors through fertilization with biomaterials with effects on food security.

EXPECTED EXPLOITABLE RESULTS:

- A new product registered for foliar fertilization of corn crops



Foliar fertilizers based on keratin or collagen hydrolysate, experimental batches of corn crops fertilized with the new fertilizer products

DISSEMINATION, PATENT APPLICATIONS, AWARDS:

- **WoS published papers: 2**

► Carmen Gaidau, Maria Stanca, Mihaela-Doina Niculescu, Cosmin-Andrei Alexe, Marius Becheritu, Roxana Horoias, Cristian Cioineag, Maria Râpa si Ioana Rodica Stanculescu, "Wool Keratin Hydrolysates for Bioactive Additives Preparation", *Materials*, 2021, 14, 4696. <https://doi.org/10.3390/ma14164696>.

► Becheritu Marius, Horoias Roxana, Cioineag Cristian, Borovina Paul, Gaidau Carmen, Niculescu Mihaela – „Yield results obtained in maize crop following the foliar fertilization with new biostimulators based on keratin and collagen hydrolysates of animal origin”. *Romanian Biotechnological Letters*, 26(6): 3129-3136, 15.pdf (e-repository.org).

- **BDI published papers: 1**

► Horoias Roxana, Becheritu Marius, Cioineag Cristian, Borovina Paul, Gaidau Carmen, Niculescu Mihaela – „Biometric results for maize crop, as a result of treatment with new biostimulators based on protein additives”. The International Conference „Agriculture for Life, Life for Agriculture”, 3-5 Iunie 2021, Bucuresti. Publicare articol in „Scientific Bulletin. Series F. Biotechnologies, Vol. XXV, Nr. 1, pag. 26-31, online la http://biotechnologyjournal.usamv.ro/pdf/2021/issue_1/Art3.pdf

- **Scientific communications :**

► Roxana Horoias, Marius Becheritu, Carmen Gaidau – „The use of foliar biostimulators in maize crop – an economic method in the crisis of agricultural inputs”. VI International European Conference on Interdisciplinary Scientific Research, 27-28 august 2022, Bucuresti, prezentare orală. Articol publicat in proceedings, pag. 1158-1164: 614b1f_9f4bc3b528234796a98c0201a7136ebb.pdf (eucongress.org)

► Alkaline and enzymatic keratin hydrolysates obtained from sheep wool, Proceedings of International Scientific and Practical Conference devoted to 90th Anniversary of Kyiv National University of Technologies and Design and the Department of Biotechnologies, Leather and Fur, pp. 34-54, ISBN 978-617-7506-55-2

► Carmen Gaidau, Mihaela Niculescu, Maria Stanca, Cosmin Alexe, Marius Becheritu, Roxana Horoias, Jiri Pecha, Protein By-products Recovery and Reuse for Sustainable Agriculture and Medical Applications, SIPS - Sustainability Through Science and Technology Summit- 2022 Conference, 27 noiembrie-1 decembrie 2022, Phuket, Tailanda, prezentare orală, p.51.

► Carmen Gaidau, Mihaela Niculescu, Maria Stanca, Cosmin-Andrei Alexe, Maria Rapa, “Protein based byproducts conversion into advanced materials”, “Contemporary solution for advanced materials with high impact on society” CoSolMat, 11-15 October 2021, Bucharest, Romania Workshop.

- **Patent Applications: 2**

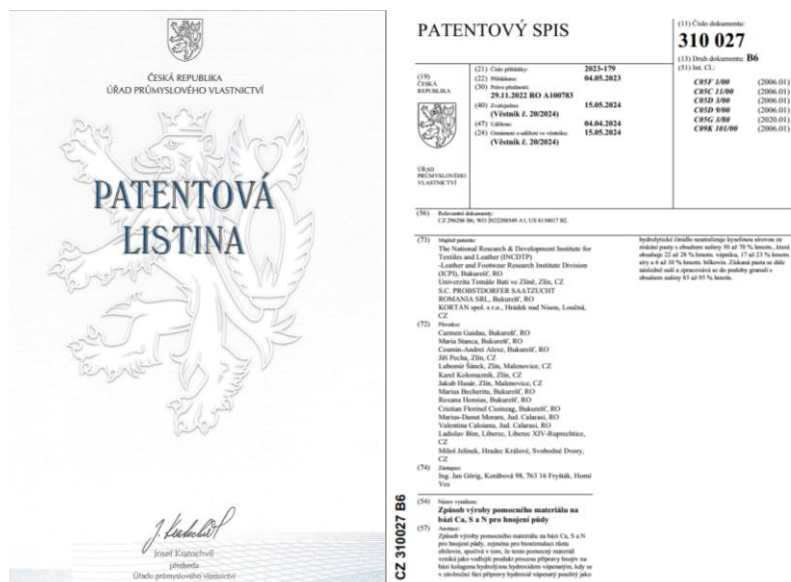
► OSIM/A/00666/20.10.2022, PROCEDEU DE OBTINERE SI EMULSIE STRUCTURATA PE BAZA DE HIDROLIZATE PROTEICE SI SURFACTANTI, CU APLICATII IN AGRICULTURA, solicitanti: INCDTP-Sucursala ICPI Bucuresti; SC Probstdorfer Saatzucht Romania SRL; autori: Gaidau Carmen, Simion Demetra, Berechet Mariana-Daniela, Becheritu Marius, Horoias Roxana, Cioineag Cristian Florinel, Borovina Paul-Mihail si Nica Andreea-Oana.

► OSIM A/00783/29.11.2022, MATERIAL AUXILIAR pe BAZA de Ca,S si N pentru FERTILIZAREA SOLULUI in CULTURA CEREALELOR si a ALTOR PLANTE, solicitanti: INCDTP-Sucursala ICPI Bucuresti; Tomas Bata University in

Zlín; SC Probstdorfer Saatzucht Romania SRL; Kortan spol. s r.o., autori: Gaidau Carmen, Stanca Maria, Alexe Cosmin-Andrei, Pecha Jiří, Šánek Lubomír, Kolomazník Karel, Husár Jakub, Becheritu Marius, Horoias Roxana, Cioineag Cristian Florinel, Moraru Marius-Danut, Caloianu Valentina, Bím Ladislav, Jelínek Miloš.

- **Patent: 1**

Patent CISLO 310027/09.05.2024, MATERIAL AUXILIAR pe BAZA de Ca,S si N pentru FERTILIZAREA SOLULUI in CULTURA CEREALELOR si a ALTOR PLANTE, Gaidau Carmen, Stanca Maria, Alexe Cosmin-Andrei, Pecha Jiří, Šánek Lubomír, Kolomazník Karel, Husár Jakub, Becheritu Marius, Horoias Roxana, Cioineag Cristian Florinel, Moraru Marius-Danut, Caloianu Valentina, Bím Ladislav, Jelínek Miloš.



- **Award: 1**

Gold medal at The International Exhibition of Inventions INVENTICA 2021, 23-25.06.2021, Iasi, for the patent, Process for Obtaining Bio Complexes Based on Collagen and Keratin to Stimulate Seed Germination and Rape Plant Nutrition, RO 134470 A0, authors: Mihaela Niculescu, Cristina Enascuta, Mihai Gidea, Doru-Gabriel Epure, Carmen Gaiday, Marius Becheritiu.

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Leather Research Department