













Plant Active Products: Research, Innovation and **Knowledge Advancements** through an International **NETwork**

POR FESR Basilicata 2014-2020



Luigi Milella

Basilicata University



































ALLEGATO A

POR FESR Basilicata 2014-2020

Avviso Pubblico per la selezione di progetti di cooperazione interregionale e transnazionale

(ai sensi dell'art. 96.3.d del Reg. (UE) n. 1303/2013)



































- 3. Le azioni devono essere coerenti con gli obiettivi specifici previsti dal PO FESR Basilicata 2014-2020. Il presente Avviso assicura una priorità alle azioni condotte sulle aree di competenza interessate dagli Investimenti Territoriali Integrati (ITI) previsti dal paragrafo 4.3 del POR FESR Basilicata 2014/2020³, alle azioni coerenti con la strategia di specializzazione intelligente S3 della Regione Basilicata⁴ ed alle azioni che contribuiscono al perseguimento della strategia macroregionale definita dal programma EUSAIR⁵.
- 4. I progetti devono prioritariamente tendere alle seguenti due finalità:
 - A. costituire nuove reti o rafforzare/valorizzare reti esistenti con partner europei per lo scambio di buone pratiche o il trasferimento di conoscenze, anche valorizzando e capitalizzando le esperienze della partecipazione a progetti finanziati con fondi UE (anche nell'ambito di programmi CTE) e/o favorire la partecipazione del sistema della ricerca regionale alle reti europee in materia di ricerca, innovazione tecnologica e digitalizzazione dell'economia (di seguito **Linea "A"**);





































Article

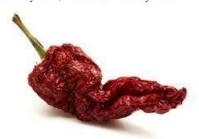
Phytochemical Profile of Capsicum annuum L. cv Senise, Incorporation into Liposomes, and Evaluatio of Cellular Antioxidant Activity

Chiara Sinisgalli ^{1,2}, Immacolata Faraone ^{1,2}, Antonio Vassallo ^{1,*}, Carla Caddeo ³, Faustino Bisaccia 1, Maria Francesca Armentano 1,2, Luigi Milella 1,2,* and Angela Ostuni 1,2

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Molecular Nutrition Food Research

Research Article

The Beneficial Effects of Red Sun-Dried *Capsicum annuum* L. Cv Senise Extract with Antioxidant Properties in Experimental Obesity are Associated with Modulation of the Intestinal Microbiota

Chiara Sinisgalli, Teresa Vezza, Patricia Diez-Echave, Angela Ostuni, Immacolata Faraone, Laura Hidalgo-Garcia, Daniela Russo, Maria Francesca Armentano, José Garrido-Mesa, Maria Elena Rodriguez-Cabezas, Alba Rodríguez-Nogales ⋈, Luigi Milella ⋈, Julio Galvez ... See fewer authors ^

First published: 10 December 2020 | https://doi.org/10.1002/mnfr.202000812 | Citations: 6

Read the full text >





















































Open Access

New Insight on the Bioactivity of Solanum aethiopicum Linn. Growing in Basilicata Region (Italy): Phytochemical Characterization, Liposomal Incorporation, and Antioxidant Effects

by Almmacolata Faraone 1,2,7 \(\sqrt{0} \), \(\sqrt{1} \) Ludovica Lela 1,7 \(\sqrt{0} \), \(\sqrt{0} \) Maria Ponticelli 1,* \(\sqrt{0} \)

Q Domenico Gorgoglione 3 ⋈ Q Filomena De Biasio 3 ⋈ Q Patricia Valentão 4 ⋈ 0.

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Editor's Choice

A Complete Survey of Glycoalkaloids Using LC-FTICR-MS and IRMPD in a Commercial Variety and a Local Landrace of Eggplant (Solanum melongena L.) and their Anticholinesterase and Antioxidant Activities

by 🏟 Filomena Lelario 1 👵 🙉 Susanna De Maria 2, 🙉 Anna Rita Rivelli 2 👵 🙉 Daniela Russo 1,3,* 🖂

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Via

























s. m. e agg. Sostanza nutritiva arricchita da principi attivi, di origine perlopiù vegetale; ad essa relativo. • Forse è inappropriato classificare tutti i nutraceutici come farmaci, ma è altrettanto vero che i nutraceutici dovrebbero essere regolamentati in modo più severo degli alimenti. Si dovrebbe richiedere la prova di sicurezza e di efficacia prima (e non dopo, come fa la Food and Drug Administration) dell'esposizione del cittadino a rischi potenziali. (E[nrica] Pu[gno], Stampa, 5 aprile 2000, Tuttoscienze, p. 1) • «Attualmente



























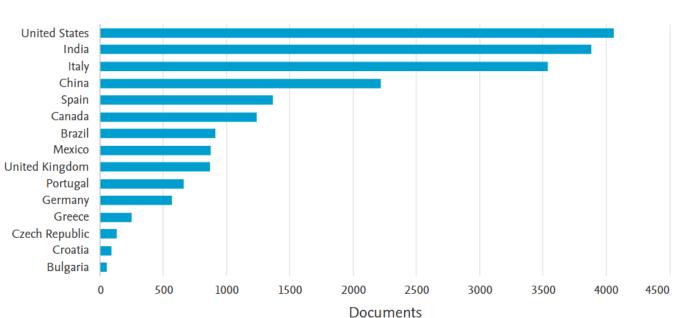


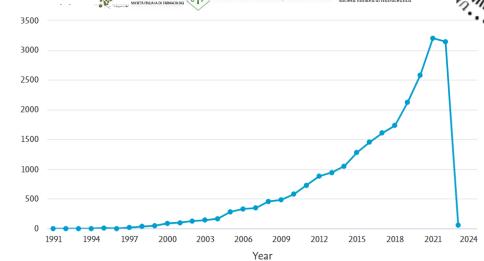


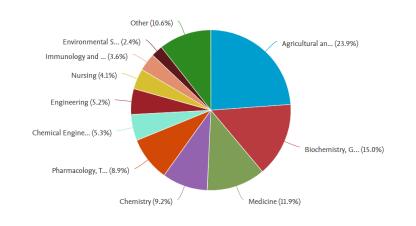




KEY-WORD
«nutraceutical*»
23,993 documents found





































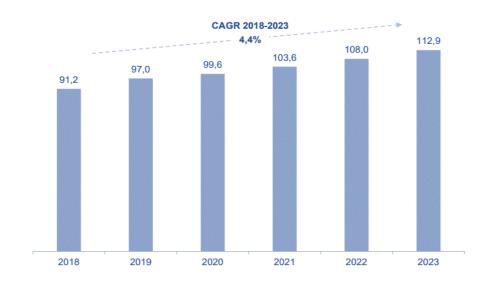




Nutraceutical market

GLOBAL NUTRACEUTICAL MARKET (2018 - 2023, €B, %)

EUROPEAN NUTRACEUTICAL MARKET (2018 – 2023, €B, %)





The global nutraceuticals market has been increasing since 2018, at a Compound Annual Growth Rate (CAGR) of 4,4% during the estimate period 2022 to 2030. A similar trend is observed in Europe, with a higher consumption of nutraceuticals in Western Europe than in Eastern Europe.

PwC Analysis, Euromonitor International 2019, Federsalus, Press































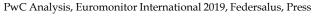




Nutraceutical market



Italy is a key geography of the nutraceutical market, thanks to the awareness of the importance of a balanced diet and a healthy lifestyle. The growing awareness of the benefits of consuming products derived from natural ingredients among Italian consumers will have a positive impact on the supplements market in the coming years.



































Objectives of PAPRIKANET.IT project

- Establish and strengthen cooperation between 10 European Partners beyond Italy, including Croatia and Greece as part of the EUSAIR strategy
- Create and develop a "Common area of knowledge and innovation" in the field of natural substances with particular reference to the nutraceutical of the native species of Basilicata and the medicinal species there present
- Promote this strategy in the local systems of Basilicata improving the mobility between research, enterprise and innovation, creating a network of highly qualified professionals working in the field of natural substances in different European Countries



































Lead Partner: UNIBAS_DiS

IT Partners: ALSIA

University of Naples Federico II

University of Salerno

European partners: Czech Rep. (3)

Croatia (1)

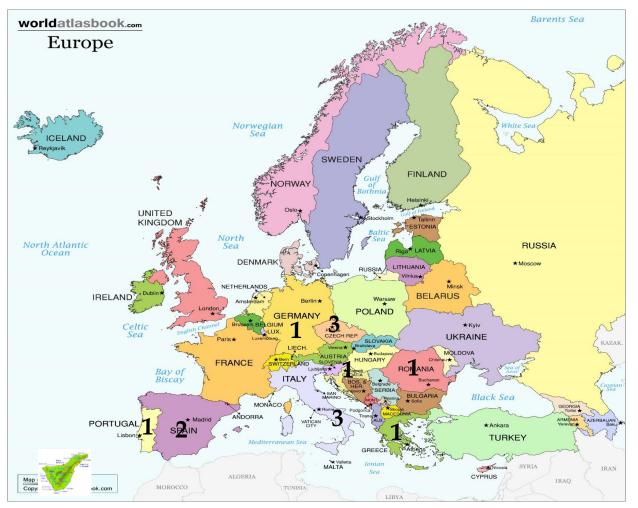
Germany (1)

Spain (2)

Portugal (1)

Greece (1)

Bulgaria (1)





































For the first time

we intend to create an important network of high-level international collaborations by bringing <u>together</u>

13 partners, of which 10 are international,

each with a different and well-documented experience from years of international scientific publications that will bring a return to Basilicata.

Not only economic, but also in terms of knowledge, experiences, enthusiasm and common projects

The entire supply chain implemented will be a model that can be translated to any other plant species, a natural product to be enhanced, resulting in a multiplier of opportunities and economies.

































Output of PAPRIKANET.IT project

- Consolidation and enhancement of cooperation between European partners
- More active participation by local entrepreneurial companies
- Improving the skills and knowledge of stakeholders
- Creation of website/platform
- Creation of a scientific chain aimed at enhancing the beneficial power of the pepper and the white aubergine of Senise and the red aubergine of Rotonda
- Publications/research reports/newsletters for the dissemination of the results of scientific research as well as through oral communications at conferences of high scientific impact



































The European Team is made up of different professional figures with different expertise and skills, all united by a rigorous scientific approach in different fields





























Unione Europea

Fondo Europeo di Sviluppo Regionale



















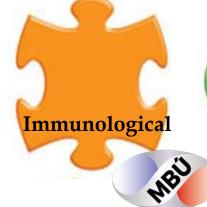


























































7-22 months

Agronomic demonstration of obtaining in vitro cultures

Responsible Partner:

- University North D. Samec Croatia
- Czech University of Life Sciences E. C. Fernández Czech Republic -
- UNIBAS_DiS





Theoretical-practical demonstration of the "best practices" necessary in order to obtain the maximum quantity of specialized biologically active metabolites through optimal growth conditions both through *in vitro* cultures.

It will be interesting to be able to see the agronomic world of Lucania species through the eyes of two different foreign countries. The activities will then be replicated at the Unibas headquarters.

































7-22 months

The world invisible to the naked eye: genes

Responsible Partner:

- Crop Research Institute J. Ovesnà Czech Republic
- ALSIA Crescenzi-Cerbino- Basilicata
- UNIBAS_DiS







Theoretical-practical demonstration in which the foreign partner will be assisted by the ALSIA. The latter, in fact, will provide the plant material for the practical section, being the repository of the genomic material of our species under study.

The analysis and genetic sequencing of the three Lucania species will be carried out with modern equipment showing what may be the genetic peculiarities of our local peculiarities in one of the two laboratories responsible for the WP coordinated by the DIS.



































4-24 months

Theoretical-practical meeting on traditional and innovative procedures for the chemical characterization of Basilicata species

Responsible Partner:

- Uni Kiel C. Zidorn Germany
- Bulgarian Academy of Sciences N. T. Tzvetkov Bulgaria
- University of Naples Federico II V. Costantino Campania
- University of Salerno N. de Tommasi Campania
- UNIBAS DiS

Theoretical-practical demonstration of "best practices" relating to the phytochemical field of the chemical characterization of plant matrices. Demonstrations and training will be carried out on tools, such as UHPLC-MS, by the responsible partners (Unina, Germany and Bulgaria) and UNIBAS. The classical and traditional qualitative-quantitative methods for determining the chemical composition of plant species will be accompanied by innovative and bioinformatic approaches of "Molecular Networking" and "Molecular Docking". The activities will then be replicated at the Lucana headquarters.













































7-22 months

Theoretical-practical meeting for the evaluation of the in vitro biological activity of natural products

Responsible Partner:

- University of Porto P. C. R. Valentão Portugal
- UNIBAS_DiS





Training meeting for the dissemination and exchange of knowledge and optimized experimental protocols in the field of natural products and biological activities.

The main methods for the evaluation of biological activity such as antioxidant, anticholinesterase, cytotoxic, hypoglycemic, or in any case related to cosmeceutics and nutraceuticals, and the strategies for the selection of *in vitro* colorimetric, biochemical and/or enzymatic assays will be highlighted. Both "*in tube*" and on cell cultures. Aspects relating to data analysis and statistics for the interpretation of results will be disseminated.

Where possible, the activities will then be replicated at the Lucana headquarters.





































7-22 months

Demonstration of preclinical, toxicological and immunological studies of natural products

Responsible Partner:

- Czech Academy of Sciences L. Vannucci Czech Republic
- Universidad de Granada J. J. Gálvez Peralta Spain
- Universidad de la Laguna C. Rubio Armendáriz Spain
- UNIBAS_DiS











Training meeting in which international partners will transfer their knowledge regarding preclinical studies, the toxicological and immunological aspects of natural substances/products. The training meeting will aim to provide information on the selection of animal models, on the safety and efficacy of a compound/natural product, determination of the dose associated with the lowest degree of toxicity, on the duration of treatment and the route of administration, but also on the diffusion of knowledge on immunological aspects. Where possible, the activities will then be replicated at the Lucana headquarters.



































7-22 months

Theoretical and practical demonstration: from the plant to the supplement

Responsible Partner:

- University of Thessaly_O. Gortzi_Greece
- UNIBAS_DiS





Theoretical-practical seminar focused on the technological-pharmaceutical aspect to show how a plant species can become a food supplement, a cosmetic or a drug.

The seminar held by the Greek research group will mainly focus on the evaluation of the best pharmaceutical formulation capable of carrying out the pharmacological activities shown by the natural products studied.

Where possible, the activities will then be replicated at the Lucana headquarters.



































7-24 months

Communicate, disseminate and promote the link

Responsible Partner: UNIBAS_DiS with all Partners



Implement the skills and competences of each partner in their sector of the supply chain through websites and other promotional materials, publications in international newspapers as well as through international conferences and meetings.

The networking of good practices will involve the connection between the countries of the EU partnership that will make it possible to benefit from the results of the project both for partners and for local and foreign companies.

An indispensable tool will be the website www.paprikanet.it under construction at the moment.























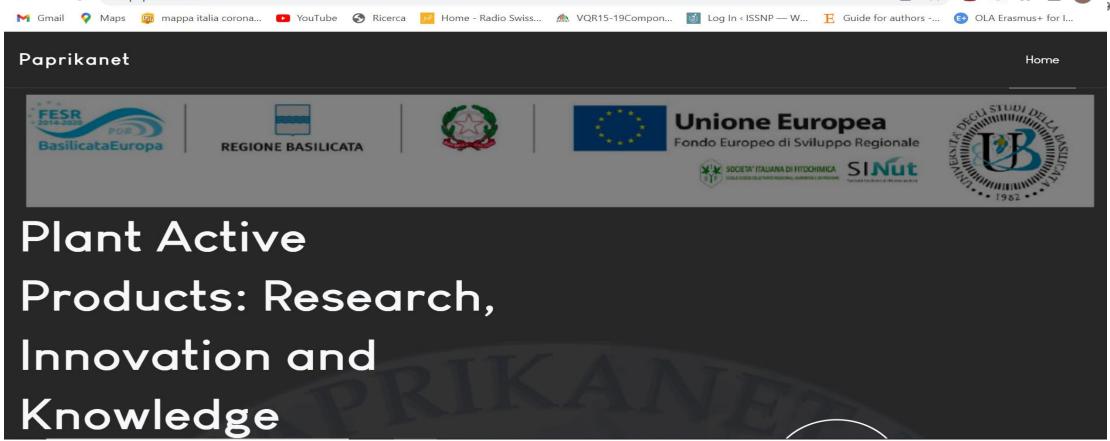












http://www.paprikanet.it/









































Article

New Insight on the Bioactivity of *Solanum aethiopicum* Linn. Growing in Basilicata Region (Italy): Phytochemical Characterization, Liposomal Incorporation, and Antioxidant Effects





Funding: This research was funded by Regione Basilicata; Project ALIMINTEGRA, GO NUTRIBAS financed on 16.1 PSR Basilicata funding ex D.G.R. n 312/17 CUP: C31G18000210002; and Project "Plant Active Products: Research, Innovation and Knowledge Advancements through an International NETwork—PAPRIKANET.IT" CUP: C39J20001740002 POR FESR Basilicata 2014-2020; Italian Ministry of the Economic Development "Fondo per la Crescita Sostenibile—Sportello "Agrifood" PON I&C 2014-2020", Project FULLNESS n. F/200099/01-03/X45.







































Article

Rhanteriol, a New *Rhanterium suaveolens* Desf. Lignan with Pharmacological Potential as an Inhibitor of Enzymes Involved in Neurodegeneration and Type 2 Diabetes

Soumia Belaabed ¹, Ayoub Khalfaoui ¹, Valentina Parisi ^{2,3}, Valentina Santoro ², Daniela Russo ^{4,5}, Maria Ponticelli ^{4,*}, Magnus Monné ⁴, Khellaf Rebbas ⁶, Luigi Milella ^{4,*} and Giuliana Donadio ²



Funding: This research was funded by Regione Basilicata; Project "Plant Active Products: Research, Innovation and Knowledge Advancements through an International NETwork—PAPRIKANET.IT" CUP: C39J20001740002 POR FESR Basilicata 2014-2020; Italian Ministry of the Economic Development "Fondo per la Crescita Sostenibile—Sportello "Agrifood" PON I&C 2014-2020", Project FULLNESS n. F/200099/01-03/X45.



































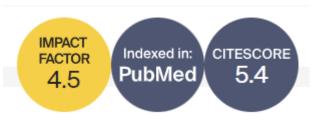




Systematic Review

An Insight into *Citrus medica* Linn.: A Systematic Review on Phytochemical Profile and Biological Activities

Nadia Benedetto ^{1,†}, Vittorio Carlucci ^{1,†}, Immacolata Faraone ^{1,2}, Ludovica Lela ¹, Maria Ponticelli ^{1,*}, Daniela Russo ^{1,3}, Claudia Mangieri ¹, Nikolay T. Tzvetkov ⁴ and Luigi Milella ^{1,*}



Funding: This research was supported by Regione Basilicata; Project PAPRIKANET—Plant Active Products: Research, Innovation and Knowledge Advancements Through an International Network CUP: C39J20001740002 program 2014IT16RFOP022; Italian Ministry of the Economic Development, "Fondo per la Crescita Sostenibile—Sportello "Agrifood" PON I&C 2014–2020", Project FULLNESS n. F/200099/01–03/X45; Project SPIA—Valorization of by-products from the agro-food chain CUP: G49J19001350004; and DGR n. 527/2019 "PO FESR BASILICATA 2014-2020—Axis I—Research, Innovation Action and Technological Development—Action 1B.1.2.1- Avviso Pubblico per il sostegno alla creazione e sviluppo dei Cluster Tecnologici della Regione Basilicata e alla realizzazione di progetti di Ricerca e Sviluppo".































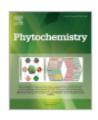






Phytochemistry

Volume 206, February 2023, 113518



The healing bitterness of Gentiana lutea L., phytochemistry and biological activities: A systematic review

6.1 4.004 CiteScore Impact Factor

Maria Ponticelli a. Ludovica Lela a. Mariapia Moles a. Claudia Mangieri a. Donatella Bisaccia c.

Immacolata Faraone a b, Roberto Falabella d, Luigi Milella a 🙎 🖂

Acknowledgments

This research was supported by Regione Basilicata; Project PAPRIKANET - Plant Active Products: Research, Innovation And Knowledge Advancements Through An International Network CUP: C39[20001740002 programme 2014IT16RFOP022; Italian Ministry of the Economic Development "Fondo per la Crescita Sostenibile—Sportello "Agrifood" PON I&C 2014–2020", Project FULLNESS n. F/200099/01–03/X45.









































Capsicum annuum L. cv Senise:

from food to liposomes with high-value antioxidant potential

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SOCIETA' ITALIANA DI FITOCHIMICA





1° Congresso intersocietà sui prodotti vegetali per la salute: Il ruolo delle piante medicinali nella medicina moderna





Dipartimento di Scienze del Farmaco Padova, 15-17 Giugno 2023

















































































Transnational Cooperation Project

MEdicinal **PLA**nts in a **SU**stainable **S**upply chain. Experience of land-use practices



ME.PLA.SU.S.

















Partnership

LP: Council for Agricultural Research and Economics - Research Centre for Agricultural Policies and Bioeconomy (CREA-PB)

- Dr. Maria Assunta D'Oronzio - Scientific referent

PP1: Department of Science – University of Basilicata (DiS – UNIBAS)

- Prof. Monica CARMOSINO Scientific referent
- Prof. Luigi MILELLA Project Manager

PP2: Lucanian Development Agency for Innovation in Agriculture (ALSIA)

- Dr. Domenico CERBINO Scientific referent
- Dr. Pietro ZIENNA Project Manager

PP3: Hellenic Agricultural Organization – DEMETER (HAO-DEMETER), Institute of Plant Breeding and Genetic Resources

- Dr. Eleni MALOUPA Scientific referent
- Dr. Dimitris FOTAKIS Project Manager

PP4: Faculty of Agriculture - University of Belgrade (UNI-BG)

- Prof. Aleksandra DIMITRIJEVIC Scientific referent
- Prof. Ana VUJOSEVIC Project Manager

















A wise man turns chance into good fortune Cit. Thomas Fuller





PAPRIKANET.IT = OUR CHANCE





















