

UNESCO CHAIR/UNITWIN NETWORK PROGRESS REPORT FORM

Title of the Chair/Network:	UNESCO Chair Salerno Plants for Health in the Mediterranean Traditions
Host Institution:	Department of Pharmacy University of Salerno- Italy Website: https://www.unescochairsalerno.it/en/en-home/
Date of establishment of Chair/Network: (mm, yyyy)	Draft Agreement 14/May/2020 Signed Agreement 26/July/2021 (52 Itali Uni Salerno final 26/7/2021 Ref ED/ADG/FLI/52)
Period of activity under report: (mm, yyyy - mm, yyyy)	July 2020-December 2022
Report established by: (name, position, email)	Prof. Rita Patrizia Aquino Full Professor of Pharmaceutical Technology and Law Department of Pharmacy University of Salerno e-mail: aquinorp@unisa.it

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Or by mail to UNESCO, Future of Learning and Innovation
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1. Executive Summary:

Major outcomes, results and impact of the Chair, including on national policies, in relation to its objectives as stated in Article 2 of the Chair Agreement (between the Institution and UNESCO)
(Not exceeding 300 words)

The Chair aims to train the next generation of scholars and scientists who will contribute to the dissemination of knowledge in the history of medicine, anthropology, ethnomedicine, natural medicine, pharmaceutical technology, and cosmetics. It will encourage the dissemination of knowledge and scientific expertise to young scholars, PhD students, and researchers from any discipline, origin, and culture through Summer/Winter Schools and Workshops with a special focus on the different aspects of the study of Mediterranean plants. Moreover, the Chair will contribute to the current need for medicine development and procurement, through a trans-disciplinary research program on plants for health. The research consists in recovering and studying relevant information from historical documents and assessing it through cross-disciplinary analysis including history, ethnobotany, anthropology, biology, phytochemistry, pharmacognosy, and pharmaceutical technology.

In the first two years of activity (2020-2022), the Chair has concentrated on:

- Contributing to the inventory and analysis of ancient manuscripts and texts on medicinal plants from the ancient Mediterranean world;
- Researching and interpreting ancient knowledge with today scientific tools, and sharing findings widely to support research aimed at ascertaining the efficacy and safety of ancient practices, exploring possible novel applications, and contributing to the development of new and sustainable strategies in modern pharmacotherapy, herbal cosmetics, body care and nutrition;
- Supporting the capacity enhancement of students, faculty members, health professionals, policy-makers, entrepreneurs, community members, and young professionals from the Mediterranean area notably through postgraduate training, lectures, visiting professorships, summer/winter schools, and publications;

- Creating, supporting, and promoting a European network of health gardens.
 - I. The aim is to recover the European tradition of “gardens of simples” developed between the Middle Ages and the Renaissance for teaching purposes;
 - II. Participating gardens are Kos, Cordoba, Salerno and Uppsala;
 - III. A not profit organization is being created. It has received the support of Salerno City Hall;
 - IV. A further step will be applying for the status of Intangible World Heritage for Salerno Medical School.

- Specific activities for students, PhD students, and professionals with the following:
 - I. Talks “Dialogues on the Salerno Medical School”, from 28 January to 18 March 2021;
 - II. Cycle of Lectures “Plants and the Four Humors Theory in the Mediterranean World”, from April to June 2021;
 - III. Autumn School “Mediterranean Phytotherapy” September-October 2023, in preparation.

- Cooperating with UNESCO and other UNESCO Chairs on relevant programs and activities. The participation and collaboration with the Italian UNESCO Chairs and Italian UNESCO National Commission professorships included the following activities:
 - I. First Regional Meeting Of The Unesco S C Chairs & Centers For South East Europe And The Mediterranean, Venice, Italy, October 27-28, 2022
 - II. A Network of Mediterranean Universities For Peace, October 30, 2022
 - III. Unitwin/Unesco Chairs Conference, Paris, France, November 3-4, 2022
 - IV. The declaration of the Italian UNESCO Chairs for sustainability, Rome, Ministry of Education, November 30, 2021;
 - V. Project Dialogues of the Italian UNESCO – Cross-disciplinary Perspective in Studying Plants for Health in the Mediterranean Traditions, July 28, 2021;
 - VI. UNESCO Chair Biodiversity Safeguard for Sustainable Development, Coimbra, Portugal, UNESCO Chair Genoa, Anthropology of Health – Biosphere and Healing Systems, Genova, May 6-8, 2021;
 - VIII. The International UNESCO Chairs Forum on the Futures of Higher Education, January 24, 2022. Dubai -United Nations;
 - IX. International Day of Women and Girls in Science 2022 -Women & Girls in Astronomy and Science, University Salerno, February 24, 2022.

2) Activities:

Overview of activities undertaken by the Chair during the reporting period

a) Education/Training/Research (key education programs and training delivered and research undertaken by the Chair during the reporting period, target group and geographical coverage)	
i) Education (leading to certificate)	Supervision of degree and doctoral theses. Supervision of scholarships and research grants. Organization (ongoing) of an Autumn School on “Mediterranean Phytotherapy”.
ii) Training (short term)	Two annual Fellowships at the Dept. of Pharmacy, University of Salerno: 1. “UNESCO Chair Salerno: Data collection and analysis”, August 2020-August 2021; 2. “UNESCO Chair Salerno: Studies on Mediterranean health plants, historical and biotechnological aspects”, September 2021- September 2022.
iii) Research	The UNESCO Chair Salerno's research in the first two years focused on: <ul style="list-style-type: none"> • History of medicinal plants in the Mediterranean world from ancient manuscripts in Greek, Latin, and Arabic preserved in libraries all over the world. Prof. Touwaide is developing a relational database with the aim of collecting and making available knowledge on medicinal species in the Mediterranean area with a particular focus on texts related to the medieval School of Salerno. • Selection and study of medicinal plants after ethnobotanical studies to compare the potential use in the New World with respect to traditional use in Latin American regions. The studies focused on the analysis of fundamental aspects such as safety, quality, and efficiency to ensure the role of plant-based medicines in healthcare. Selected species: <ul style="list-style-type: none"> - <i>Courupita guianensis</i> (Cannon ball, Lecythidaceae), the tree is widespread in tropical South America (Peru) and India and is used in local traditional medicine. All of its parts are employed by natives to treat a wide spectrum of human illnesses such as hemorrhage, piles, scabies, dysentery, scorpion sting, hypertension, tumors, malaria, odontalgia, inflammatory processes, kidney and stomach problems, allergies, ulcers, toothache, and skin diseases. - <i>Colocasia esculenta</i> (L.) Schott (Araceae), a species widely spread in the Mediterranean region, but of which little is known yet, as evidenced by the few works in the scientific literature. Our study focuses on the uses of this medicinal plant listed in ancient manuscripts and used in local traditions by analyzing with a modern key, identifying new applications responding to the current needs of a new economy of health, based on the sustainable use of natural resources and a valorization of local traditional knowledge. - Various Mediterranean species, such as <i>Vitis vinifera</i> and <i>Castanea sativa</i>, (completion and publication of results) as a new, economically, and environmentally sustainable source for bioactive molecules useful in modern pharmacotherapy, phytocosmesis, and nutrition.

b) Conferences/Meetings

(key conferences and meetings organized by the Chair or to which its Chairholder contributed)

The Coronavirus pandemic required to adapt the communication strategy in function of current regulations. In-person meetings were not permitted, and contrary to online activities (lectures, seminars and others relayed worldwide) through streaming and other communication techniques allowing for a wider diffusion). As soon as restrictions were lifted, in-person activities have been organized.

- Key lectures and workshops hosted by the Chair

The Chair has organized and promoted the following public lectures and workshops for students (including PhD candidates), scholars, scientists, and professionals:

- Cycle of lectures “**Plants and the Four Humors Theory in the Mediterranean World. Understanding Medicinal Plants through the Centuries**”.

Organized in collaboration with:

- Institute for the Preservation of Medical Traditions, Washington, DC, USA;
- Minerva Garden, Salerno;
- Research and Innovation Center in Phytotherapy, Careggi University Hospital, Florence

Programme of the lectures:

- April 27, 2021
The Origins. The Humoral Theory in Antiquity
Alain Touwaide, P.I. UNESCO Chair Salerno, and Scientific Director, Institute for the Preservation of Medical Traditions, Washington, DC, USA;
- May 25, 2021
The Influence of the Humoral Theory on Salerno's Therapeutics
Luciano Mauro, UNESCO Chair Salerno, and Minerva Garden, Salerno
- July 1, 2021
Phytotherapy and Clinical Practice Today
Fabio Firenzuoli, Research and Innovation Center in Phytotherapy, Careggi University Hospital, Florence
- Cycle of talks of “**Dialogues on the Salerno Medical School**”, January 28-March 18, 2021.
Supporting the Department of Cultural Heritage, University of Salerno, and the Municipality of Salerno,
 - References to the Salerno Medical School in medieval romance literature
 - Lines of developments of the Salerno Pharmacopoeia between the 12th and the 14th centuries
 - Salerno Medical School: texts and images
 - Health of the body and health of the soul in the Middle Age
 - Women and Health: from the remedies of the Salerno Medical School to modern cosmetology
 - Places, images and memory of the Salerno Medical School
 - *Salus per aquam*.

- **Botanicum 2021 *Quando le erbe servono a curare e non solo***

Castelluccio Superiore (PZ, Italy), September 17-19, 2021, with the following presentations by members of the UNESCO Chair Salerno:

- Dr Giovanni Canora, Scientific and Organizing Committees
Regimen Sanitatis Salerni, i dettami ante litteram della Positive Biology

- Rita P. Aquino, Introduction
Plantae Medicinales Mediterraneae

- **A new international master on Mediterranean diet for ecological transition** in the framework of the Parliamentary Assembly of the Mediterranean [PAM] academic platform side event of the *Third World Conference on the Revitalization of the Mediterranean diet* organized by PAM.

- **Seminars held at the Conservatory of Ethnobotany** in Castelluccio Superiore (Pz), in which Dr Giovanni Canora, co-founder of UNESCO Chair Salerno, was a member of the organizing committee and speaker. The workshops are listed below:
 - *Erbe e Funghi del Pollino*, October 15, 2022
 - *Training and professional updating in Phytotherapy and Nutraceuticals: Meristemotherapy*, November 4, 2022,
 - *1st anniversary of the Conservatory of Ethnobotany*, November 12, 2022
 - *Training and professional updating in Phytotherapy: Physiological Activities: Obesity, Immune System, and Respiratory System*, November 14, 2022:
 - *Training and professional updating in Nutraceuticals: Immune, Digestive and Circulatory system*, December 2, 2022.

- **Other conferences/organizational activities undertaken by the Chair members**
 - October 28, 2021, *Greek Medicine in a Time of Epidemics*.
Alain Touwaide, an event organized by the Department of Classics and Mediterranean Studies, University of Illinois Chicago (UIC).

 - September 30, 2021, *Identifying Pathologies through Therapy. A New Approach to Ancient Diseases*.
Alain Touwaide, organized by the Centre for the Study of Medicine and the Body in the Renaissance (CSMBR).

 - July 28, 2021, *Dialogues of the Italian UNESCO Chairs*.
The Chair Holder, supported by all the co-founders and researchers, animated a webinar of the *Dialogues of the Italian UNESCO Chair*, a series realized by the Italian UNESCO Chairs that, through a debate with researchers and experts on the topics of the global challenges for sustainable development. During this event, the Chair highlighted how it can contribute to the current crisis of medicine development and procurement, interpreting ancient data with the scientific keys of biology, molecular biology, pharmaco-chemistry, pharmacology, botany, pharmacognosy, and natural medicines to identify possible renewed and modern applications.

 - May 6-8, 2021, *Las respuestas de la Psicología ante el COVID. La Psicología Integrada*.
Tania Re, invited speaker at XXIX Congresso Internacional Infad/Nicsh Confiança Em Tempos De Crise, in Coimbra, Portugal.

 - November 3-4, 2022, *International Conference for the 30th anniversary of the UNITWIN/UNESCO Chairs Programme*, at UNESCO's headquarters in Paris "Transforming Knowledge for Just and Sustainable Societies".

- **A selection of conference presentations by the Chairholder and other colleagues**

Given the goals of the 2030 Agenda, different research studies have been conducted to identify new resources from plant species waste widely spread in the Mediterranean area. In particular, the

studies were conducted on chestnut spiny burs, waste generated during the harvest of the fruit. The results obtained highlighted the possibility of using this by-product as a resource of bioactive molecules with antioxidant and antimicrobial activity, for food packaging and ingredient for cosmetic formulations contributing to satisfying one of the goals of UNESCO Chair Salerno: the development of a new strategy, economically and environmentally sustainable, in modern pharmacotherapy, phytocosmesis, and nutrition. Results have been presented at different international and national conferences below.

As per the programme of the Chair, research has also explored historical topics related to the history of the Salerno Medical School. Data have been presented in various venues.

All presentations below are listed in chronological order (from the most recent)

November 19, 2022

Alain Touwaide

- *Tradizione e innovazione degli ospedali medievali.*
- *Le erbe della salute.*

National Meeting of the Associazione Culturale degli Ospedali Storici Italiani (ACOSI)
Venezia, Italy.

October 29, 2022

Alain Touwaide

Pharmaco-therapeutics for mental illness in antiquity.

International conference “Body, Mind and Medicine: Forms of Mental Illness and their Consequences in the Ancient World and Today”, Durham University (UK).

Online

June 27, 2022

Alain Touwaide

Salerno al di là del mito. Nuove ricerche sul contesto della Scuola.

Lecture cycle “Scuola Medica Salernitana”, Inter-department Research Centre Althea,
Salerno, University, Salerno, Italy.

May 28-31, 2022

Costas Grivas, Emanuela Appetiti, Alain Touwaide

Beeswax Ointments in Ancient Texts and Modern Practice.

21st International Congress of International Society for Ethnopharmacology, China Medical University,
Taichung, Taiwan.

Online

12-14 May 2022

Alain Touwaide

Inaugural Lecture. Lost in Scholarship. Byzantine Medicine.

Fourth Colloquia Ceranea. International Conference, Ceraneum Centre,
University of Łódź, Poland

Online

May 10, 2022

Alain Touwaide

Plantes, Nature et Santé à Byzance.

Programme “Humanités et questions d’environnement”,
Institut Catholique de Paris, Paris, France.

April 26, 2022

Alain Touwaide

Piante e medicina nel mondo antico.

Dipartimento di Biologia, in collaboration with the PhD Programme “Antichita’ classiche e la loro Fortuna”, and the Scuola Superiore di Studi in Filosofia.

University Tor Vergata, Rome, Italy.

January 7, 2022

Alain Touwaide

History of Medicine and Integrative Medicine?

Society of Students for Integrative Medicine, School of Medicine, , University of California Los Angeles, Los Angeles, CA, USA.

Online

November 19, 2021

Tiziana Esposito

Castanea sativa waste as dermo-functional ingredient into a topical delivery system: from the design and development of the formulation to in vitro stability and in vivo skin tolerability and efficacy.

5th International Webinar on Global Advanced Nursing, Patient Safety and Healthcare.

October 29, 2021

Alain Touwaide

Rediscovering Greek Medicine. Wisdom from hidden manuscripts and texts.

Λόγος Colloquium, Center for Hellenic Studies, University of Chicago.

Chicago, IL, USA.

October 28, 2021

Alain Touwaide

Greek Medicine in a Time of Epidemics

Department of Classics and Mediterranean Studies,

University of Illinois, Chicago, Chicago, IL, USA.

October 9, 2021

Rita P. Aquino

Plantae Medicinales Mediterraneae: from the pan-Mediterranean tradition to current scientific research.

SANA Restart, Tradition, scientific research and data on the medicinal plant market in the Covid period, Bologna, Italy.

September 30, 2021

Alain Touwaide

Identifying Pathologies through Therapy. A New Approach to Ancient Diseases

Centre for the Study of Medicine and the Body in the Renaissance, Pisa, Italy.

Online.

September 14-23, 2021

Tiziana Esposito

Castanea sativa waste as dermo-functional ingredient into a topical delivery system: from the design and development of the formulation to in vitro stability and in vivo skin tolerability.

National Congress of Italian Chemistry Society SCI2021.

June 28-30, 2021

Alain Touwaide

Plant Classification in Hernandez. A New Solution to an Old Problem

International Conference “Francisco Hernandez (1515-1587) 450 Years from his First Scientific Visit to the New World”,
Mexico City, Mexico.
Online

May 19-21, 2021

Tiziana Esposito

Development of a cosmetic formulation with a phytoactive ingredient from chestnut (Castanea sativa) wastes: evaluation of in vitro stability and in vivo skin tolerability and efficacy.

The 12th International Phytocosmetics and Phytotherapy Congress, Patras, Greece.

March 25, 2021

Alain Touwaide

From Plants to Medicines. A First Approach to Dioscorides' Pharmaceutical Techniques.

2nd International Conference, Academy of Ancient Greek and Traditional Chinese Medicine.

Athens, Greece.

Online

March 7, 2021

Alain Touwaide

A Cannabis Trip Through History

Natural Products Expo West, American Herbal Producers Association, 2021 Annual Member Meeting.

Online

February 3-4, 2021

Tiziana Esposito

Design, development, and characterization of bioactive pullulan-based films loaded with functional extracts from chestnut waste and hazelnut by-product.

EPNOE, 4th EPNOE International Junior Scientists online Meeting.

January 21, 2021

Tiziana Esposito

New packaging films loaded with Chestnut Spiny burs and roasted hazelnut skins extracts: from waste and by-product to functional ingredients.

Online Summit on Recycling and Waste Management (RWM 2021 | Chapter 3).

October 16, 2020

Tiziana Esposito

New packaging films loaded with Chestnut Spiny Burs and Roasted Hazelnut Skins extracts: from waste and by-product to functional ingredients.

Invited lecture 6th International Conference on Food Science and Food Safety, Vienna, Austria.

April 27-29, 2020

Alain Touwaide and Emanuela Appetiti

Expanding the Scope of Greek Ethnopharmacology. Eurasian Medicinal Plants on the Mediterranean.

20th International Congress of the International Society for Ethnopharmacology.

Thessaloniki, Greece.

Online

ic) Interuniversity Exchanges/Partnerships

(principal exchanges/partnerships between the Chair and other institutions including UNESCO Chairs/UNITWIN Networks)

Main Partnerships:

- UNESCO Chair Biodiversity Safeguard for Sustainable Development, Coimbra, Portugal;
- UNESCO Chair Genoa, Anthropology of Health – Biosphere and Healing Systems, Genoa, Italy;
- Italian UNESCO Chairs:
June - September 2021 Dialogues with UNESCO Chairs, a laboratory idea for the world to come
October 2020- October 2021 Declaration of the Italian UNESCO Chairs for sustainability
- Botanical Garden and Museum of Rome, Sapienza University, Rome, Italy
- University of Pisa and Italian Buddhist Union: August 28–September 5, 2021 Tania Re, co-founder of UNESCO Chair Salerno, delivered the lecture *Shamanic Trance* at the 2021 edition of the Summer School “Consciousness and Cognition” organized by the University of Pisa in collaboration with the Lama Tzong Khapa Institute and Frontiers of Mind, with the patronage of the Italian Buddhist Union.
- UNESCO Regional Bureau for South-East Europe and the Mediterranean Region, for the First Meeting of Science-Related Chairs and Centers in South-East Europe and the Mediterranean Region, Venice, Italy, 27-28th October 2022.

d) Publications/Multimedia Materials
(major publications and teaching/learning materials)

Please tick relevant fields of output and indicate volume of output:

Books.....	1
Books (chapter)	8
Monographs	
Research Reports	
Journal Articles (refereed)2
Conference Proceedings...20
Occasional Papers	9
News and Event.....	13
Teaching/Learning Materials	
Multimedia Materials (CD-ROM)	

	Multimedia Materials (Video)...9
	Multimedia Materials (Other)	

Give details of major publications and materials including full citations.

I) Publications

Books

Alain Touwaide, *Greek Medical Manuscripts. Diels' Catalogue*, 5 vols. Berlin and Boston, MA: De Gruyter, 2021:

Vol. 1: Diels' Catalogue

Vol. 2: *Corpus Hippocraticum*

Vol. 3: *Corpus Galenicum*

Vol. 4: *Ceteri Medici*

Vol. 5: The Manuscripts and their Texts

Books (edited)

Alain Touwaide (ed.), *A Cultural History of Plants, The Post-Classical Period* (= vol. 2 of Annette Giesecke and David Mabberley [eds], *A Cultural History of Plants*, 6 vols.). London: Bloomsbury, 2022.

Books(chapters)

Alain Touwaide "Medical Humanities as a Search for Unity", in Rinaldo Canalis, Massimo Ciavolella, and Valeria Finucci (eds.), *Rethinking Medical Humanities. Perspective from the Arts and the Social Sciences* (Medical Traditions 7). Berlin and Boston, MA: De Gruyter, 2022, pp. 401-409.

Alain Touwaide, "Plants and Medicine", in A. Giesecke (ed.), *A Cultural History of Plants, Antiquity* (= vol. 1 of Annette Giesecke and David Mabberley [eds], *A Cultural History of Plants*). London: Bloomsbury, 2022, pp. 109-130.

Alain Touwaide, "Introduction", in Alain Touwaide (ed.), *A Cultural History of Plants, The Post-Classical Period* (= vol. 2 of Annette Giesecke and David Mabberley [eds], *A Cultural History of Plants*, 6 vols.). London: Bloomsbury, 2022, pp. 1-19.

Alain Touwaide, "Plants as Luxury Foods", in Alain Touwaide (ed.), *A Cultural History of Plants, The Post-Classical Period* (= vol. 2 of Annette Giesecke and David Mabberley [eds], *A Cultural History of Plants*, 6 vols.). London: Bloomsbury, 2022, pp. 39-58.

Alain Touwaide, "The Art of Medicine in Byzantium. The Missing Link", in Rinaldo F. Canalis and Massimo Ciavolella (eds), *Disease and Disability in Medieval and Early Modern Art and Literature* (Cursor Mundi 38). Turnhout: Brepols, 2021, pp. 77-105.

Alain Touwaide, "Botany", in Stavros Lazaris (ed.), *A Companion to Byzantine Science, c. 400-1500* (Brill's Companions to the Byzantine World 6). Leiden and Boston, MA: Brill, 2021, pp. 302-353.

Alain Touwaide, "Medicine and Pharmacy", in Stavros Lazaris (ed.), *A Companion to Byzantine*

Science, c. 400-1500 (Brill's Companions to the Byzantine World 6). Leiden and Boston, MA: Brill, 202, pp. 354-403.

Alain Touwaide, "The Challenges of Scholarly Publications. A 17th-century Edition of Hippocrates and Galen", in Maria Do Sameiro Barroso, Chris J. Duffin, and Germano de Sousa (eds), *Medical Heritage of the National Palace of Mafra*. Newcastle upon Tyne: Cambridge Scholars Publishing, 2020, pp. 90-108.

Journal Articles (refereed)

Esposito, T., Mencherini, T., Sansone, F., Auriemma, G., Gaggero, P., Puca, R. V., ... & Aquino, R. P. (2021). *Development, Characterization, and Clinical Investigation of a New Topical Emulsion System Containing a Castanea sativa Spiny Burs Active Extract*. *Pharmaceutics*, 13(10), 1634.

Esposito, T., Paolucci, M., Sansone, F., Mencherini, T., Pacifico, S., & Volpe, M. G. (2021). *Exploitation and Valorization of Agro-Food Wastes from Grape Harvesting: Production, Characterization of MAE-Extracts from Vitis vinifera Leaves and Stabilization in Microparticulate Powder Form*. *Applied Sciences*, 11(13), 5827.

Pisanti, S., Mencherini, T., Esposito, T., D'Amato, V., Re, T., Bifulco, M., & Aquino, R. P. (2022) *The medieval skincare routine according to the formulations of Madgistra Trotula and the Medical School of Salerno and its reflection on cosmetology of the third millennium*. *Journal of Cosmetic Dermatology* <https://doi.org/10.1111/jocd.15234>

II) Other publications (online)

Publications are related to the research carried out by the members of the Chair to disseminate knowledge on Mediterranean plants, also through the application of a modern scientific approach:

- Touwaide A. And Appetiti E. *Herbs in History* (monthly publications). As of December 31, 2022, monographs published thus far (2022): aloe, blueberry, crocus, cannabis.
- Touwaide A. and Appetiti E. *Trovare una cura in tempi di epidemie. il caso della peste di Giustiniano*, *Med. Stories*, 15 Maggio 2020.
- Celano, R., Docimo, T., Piccinelli, A. L., Gaggero, P., Tucci, M., Di Sanzo, R., ... & Rastrelli, L. (2021). *Onion peel: Turning a food waste into a resource*. *Antioxidants*, 10(2), 304.
- Esposito, T., Sansone, F., Auriemma, G., Franceschelli, S., Pecoraro, M., Picerno, P., ... & Mencherini, T. (2020). *Study on Ajuga reptans extract: A natural antioxidant in microencapsulated powder form as an active ingredient for nutraceutical or pharmaceutical purposes*. *Pharmaceutics*, 12(7), 671.
- Kerbab, K., Sansone, F., Zaiter, L., Esposito, T., Celano, R., Franceschelli, S., ... & Mencherini, T. (2019). *Halimium halimifolium: From the chemical and functional characterization to a nutraceutical ingredient design*. *Planta Medica*, 85(11/12), 1024-1033.
- Bifulco, M., De Falco, D. D., Aquino, R. P., & Pisanti, S. (2019). *Trotula de Ruggiero:*

The Magistra mulier sapiens and her medical dermatology treatises. *Journal of Cosmetic Dermatology*, 18(6), 1613-1616.

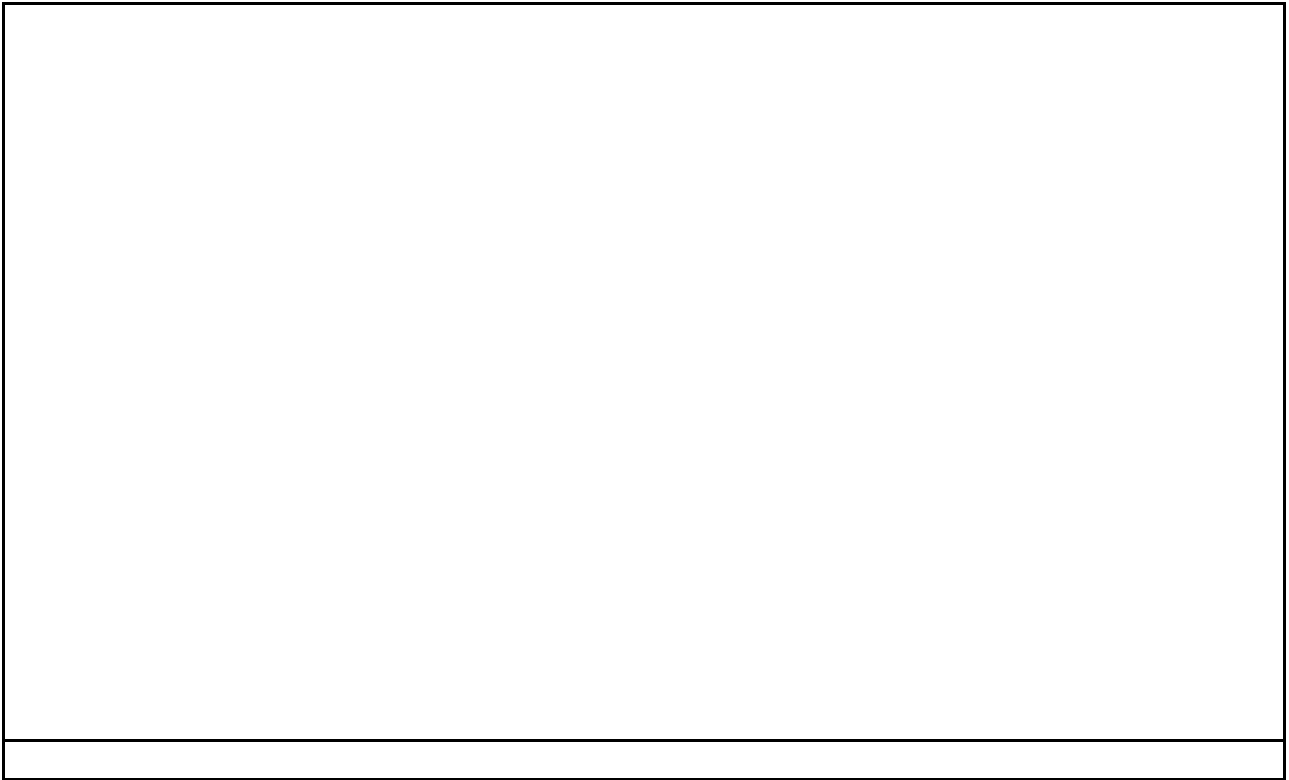
- Re, T., & Vitiello, G. (2020). *Non-linear dynamics and chaotic trajectories in brain-mind visual experiences during dreams, meditation, and non-ordinary brain activity states*. *OBM Neurobiology*, 4(2), 1-1.
- Adine Gavazzi, Giovanni Perotti, Tania Re, Good Health, Quality Education, Sustainable Communities, Human Rights : the scientific contribution of Italian UNESCO Chairs and partners to SDGs 2030, © 2019 FUP, CC BY 4.0 International, published by Firenze University Press (www.fupress.com), ISSN 2704-5870
- Gulluni, N., Re, T., Loiacono, I., Lanzo, G., Gori, L., Macchi, C., Epifani F, Bragazzi N. & Firenzuoli, F. (2018). Cannabis essential oil: A preliminary study for the evaluation of the brain effects. *Evidence-based Complementary and Alternative Medicine: eCAM*, 2018.

III) Multimedia materials

- The website represents a useful resource for spreading the study of plants for health, from anthropology to the history of Mediterranean cultures, to modern pharmaco-technology, chemical, pharmaceutical, and biological knowledge. Care of the coordinated graphic image and communication of the Chair:
- **Website:** <https://www.unescochairsalerno.it/en/en-home/>
- **YouTube Channel:** <https://www.youtube.com/channel/UCyL8nDrxudryDe1iLZw-iQ>
- **Facebook:**
<https://www.facebook.com/unescochair.plantsforhealthmediterraneantradition>;
- **LinkedIn:**
<https://www.linkedin.com/company/unesco-chair-plantae-medicinales-mediterraneae/>

Several events have been shared on the YouTube channel and the Facebook page. See below:

- Dialogues with UNESCO Chairs - Cross-disciplinary Perspective in Studying Plants for Health in the Mediterranean Traditions:
https://www.youtube.com/watch?v=_fQc3Edm-lQ
- Fitoterapia e Pratica Clinica Oggi - Phytotherapy and Clinical Practice Today:
<https://www.youtube.com/watch?v=laQopu9ctiY>
- The Influence of the Humoral Theory on Salerno's Therapeutics:
<https://www.youtube.com/watch?v=OpAO76YSISA>
- La Dottrina Umorale e Le Piante nel Mediterraneo - Le Origini: La Teoria Umorale nell'antichità: <https://www.youtube.com/watch?v=THCEgz8qVMM>
Donne e Salute: Dai Rimedi della Scuola Medica Salernitana alla Moderna Cosmetologia. www.facebook.com/watch/?v=214376400381266
- Conversazioni Sulla Scuola Medica Salernitana:
<https://www.facebook.com/culturasalerno/videos/214376400381266/>
- Conversazioni sulla Scuola Medica Salernitana: *Linee di sviluppo della farmacopea salernitana fra il XII e il XIV secolo*:
<https://www.facebook.com/culturasalerno/videos/254683066200475>
- Ricerca di Campo: UNESCO Chair Salerno
<https://www.youtube.com/watch?v=HSI1D27ADRU&t=2s>
- Farmacia, a Salerno Patto UNESCO-Università:
<https://www.youtube.com/watch?v=5sV6CyYT-Zc&t=2s>



e) Cooperation with UNESCO Headquarters, Field Offices

- November 9-24, 2021
Paris – 41st Session of the General Conference UNESCO
Side Event Organized by Dialogues of Italian UNESCO Chairs with the support of the Italian National Commission for UNESCO, Declaration of the Italian UNESCO Chairs on Sustainability.
- January 24, 2022
Dubai - International Day of Education 2022- UNESCO's Future of the Education
The International UNESCO Chairs Forum on the Futures of Higher Education
Collective Intelligence for knowledge and learning

f) others (any other activity to report)

Other events contributing to disseminate the main goals of UNESCO Chair Salerno:

- May 18, 2022
UNESCO Chair Salerno participated in the sixth international “Fascination of Plants Day”. Navigating through open-air lab experiments: researchers of the Chair showed healthy plants’ residual biomasses from the Mediterranean traditions, technologies for their recovery & re-use as well as effects on well-being.
- April 16, 2022
TV dissemination activities: *Linea Verde Link*, produced by RAI (RAI-Italian Radio Television channel) participation of Chair Holder Rita P. Aquino, with a video interview, which took place at the research laboratories of DIFARMA, University of Salerno, "Dermo-active ingredient obtained from *Castanea sativa* waste in a cosmetic cream"
- April 8-10, 2022
The UNESCO Chair Salerno took part in the 20th edition of the *Mostra della Minerva* in Salerno, organized by Hortus Magnus Association with the patronage of the City Hall of Salerno. There were more than 90 stands of farmers, schools, botanical gardens, cultural associations, plants’ collection holders and plant experts. UNESCO Chair, guest of both the Minerva Garden and I Colori del Mediterraneo Association, presented the Chair’s main activities.
- December 11, 2021
“Il Metodo Cilento” (The Cilento Way of Life), a new book by Luciano Pignataro, reporter and famous gastronome, was presented by Chair holder Rita P. Aquino, at Mangrella Auditorium in the Monumental Complex “San Francesco”, in Eboli (SA).
- November 30, 2021
UNESCO Chair Salerno took part in the event Declaration of the Italian UNESCO Chairs for Sustainability
- November 13, 2021
Inauguration of the first Ethnobotanical Conservatory in Castelluccio Superiore (PZ), Italy, established by Giovanni Canora, one of the founders of this Chair.

- November 2021
In *Kosmetica* n. 8: an interview with Chair Holder Rita P. Aquino, on the synergy of nutraceuticals and dermocosmetics from natural sources.
- September 29, 2021
International UNESCO Earth Network: the call for Earth Network volunteers was published.
- June 7, 2021
The Department of Pharmacy (DIFARMA) at the University of Salerno was featured in the Italian newspaper *Il Sole 24ore* as an outstanding example of the finest connection of excellence, tradition, and innovation in the research and education.

May 9, 2021

Physiotherapy n. 33: Interview with Tania Re, Co-Founder UNESCO Chair, Anthropology of health – Biosphere and Healing systems, on the Salerno Medical School: Mediterranean ethnomedical heritage.

- April 14, 2021
“I segreti delle erbe. Disponibili on line i Libri della Minerva” (The secrets of herbs. Minerva's books available online)”. An article about the library at the Minerva Garden, in *Il Quotidiano del Sud. Edizione Salerno*.

September 21, 2020

Mediterranean Area, the leader role of medicinal plants in healthcare - in the Italian newspaper *Il Sole 24ore*, an article on UNESCO agreement with the nivethe Salerno UNESCO Chair *Plants for Health in the Mediterranean Traditions* as an outstanding example of the finest connection of excellence, tradition, and innovation in the research and education.

Formal teaching

Alain Touwaide

Chicago, IL, University of Illinois, Chicago.
Pharmacognosy Institute and Honors Program.
“Historical Ethnobotany. An Introduction”.
September 9 and 16, 2022.

Paris, Ecole des Hautes Etudes en Sciences Sociales, May 2022:

Programme “La médecine dans le monde méditerranéen des XIIIème et XIVème siècles - Medicine in the 13th- and 14th-Century Mediterranean World”:

- Les données des manuscrits – The Manuscript Evidence.
- Une autre thérapie – Transforming Therapeutics.
- Médecins, livres et plantes d’un monde à un autre – Peoples, Books and Plants on the Move.
- Vers une nouvelle lecture de la médecine méditerranéenne – Revisiting the Traditional Narrative.

Chicago, IL, University of Illinois, Chicago.

- Pharmacognosy Institute and Honors Program.
“Historical Ethnobotany. An Introduction”.
October 25 and November 1, 2021.
- Department of Classics and Mediterranean Studies.
 - Medical Lexicology. Pharmacy.
October 25, 2021.
 - Medicine in Rome.
October 27, 2021.

Pisa, Centre for the Study of the Medicine and the Body in the Renaissance, 2021 Summer School, July 7, 2021. Online

“Before Dosage. Measuring Therapeutic Actions in the Mediterranean Traditions”.

Professional service

Emanuela Appetiti, Member of the Scientific Committee and organizing Committee, 48th Congress of the International Society for the History of Medicine, to be held online and in-person, Iasi, Romania, September 15-18, 2022.

Emanuela Appetiti, Member of the Executive Committee of the 14th International Phytocosmetics and Phytotherapy Congress, held online and in-person, in Cairo, Egypt, May 10-12, 2022.

Emanuela Appetiti, Member of the Executive Committee of the 12th International Phytocosmetics and Phytotherapy Congress, online, May 19-21, Greece.

3. Future Plans and Development Prospects:

*Outline of action plan for the next biennium and short/medium and long-term development prospects.
Please do not hesitate to refer to difficulties that the Chair has experienced*

(Not exceeding 300 words)

The Chair will train the next generation of scholars and scientists who will contribute to the dissemination of knowledge in the history of medicine, anthropology, ethnomedicine, natural medicine, pharmaceutical technology, and cosmetics. It will encourage the dissemination of knowledge and scientific expertise to young scholars, PhD students, and researchers from any discipline, origin, and culture through intensive Summer/Winter/Autumn Schools and Workshops with a special focus on the different aspects of the study of Mediterranean plants.

Appendix:

Human Resources

The core working group of the UNESCO Chair Salerno is composed of:

- Project Leader/Chair Holder;
- P.I. (Principal Investigator);
- Co-Founders of the Chair.

They are supported by:

- faculty (PhD, Post-Doc, and Researchers) of the University of Salerno;
- fellows with different disciplinary skills related to the scientific fields of the UNESCO Chair.

The following staff has contributed to the achievements of this Chair:

- **Project leader/Chair Holder**, Prof. Rita P. Aquino, Full Professor Pharmaceutical Technology and Law, Department of Pharmacy, University of Salerno;
- **Principal Investigator**, Prof. Alain Touwaide, Co-Founder and Scientific Director, Institute for the Preservation of Medical Traditions, Washington, DC, USA, with specialization in the History of Ancient Science, Medicine and Pharmacy.
- **Faculty** (Co-Founders and researcher group)
 - Emanuela Appetiti, Co-Founder, President and CEO of the Institute for the Preservation of Medical Traditions, Washington, DC, USA;
 - Dr. Giovanni Canora, Co-Founder, Researcher of Traditional Mediterranean Medicine, Centro Studi Schola Medica Salernitana, Cava de' Tirreni, Salerno;
 - Dr. Luciano Mauro, Co-Founder, Director of the Minerva Garden, Salerno;
 - Prof. Tania Re, Co-Founder UNESCO Chair, Anthropology of health – Biosphere and Healing Systems;
 - Prof. Teresa Mencherini, Associate Professor of Pharmaceutical Biology, Department of Pharmacy, University of Salerno;
 - Prof. Francesca Sansone, Associate Professor of Pharmaceutical Technology, Socioeconomics and Legislation, Department of Pharmacy, University of Salerno;
 - Prof. Valeria D'Amato, Associate Professor of Mathematical methods for Economics and Actuarial and Financial Sciences; University of Salerno;
 - Prof. Pasquale Del Gaudio, Full Professor of Pharmaceutical Technology and Law, Department of Pharmacy, University of Salerno;
 - Prof. Paola Russo, Associate Professor of Pharmaceutical Technology, Socioeconomics and Legislation, Department of Pharmacy, University of Salerno.

- **Collaborators (Post-Doc, Researchers and Fellows)**

- Dr. Tiziana Esposito, Research fellow at Department of Pharmacy, University of Salerno;
- Dr. Simona Pisanti, Research fellow at the Department of Pharmacy and Department of Medicine. Surgery and Dentistry, University of Salerno;
- Gabriella Margotta, Scholarship holder at Department of Pharmacy, University of Salerno.

2) Financial Resources during the reporting period

Please tick sources of financial contribution and specify the amount in U.S. dollars

[tick]

Amount (\$)

Host Institution

Partner Institution

Government Body

Other Public Institution/Body

(incl. Research Councils)

UNESCO

Other UN Agency

IGO

NGO

Industry

Other Private

Give details of financial contributions, material resources and space.

