



FEMTEC

WORLD FEDERATION OF HYDROTHERAPY AND CLIMATOTHERAPY
NGO IN OFFICIAL RELATION WITH WHO (WORLD HEALTH ORGANIZATION)



CASTEL SAN PIETRO TERME (Italy)

NOVEMBER 3-6, 2022

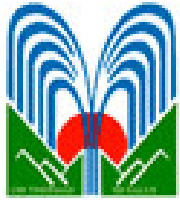
“THERMALISM IN CHANGING SOCIETIES”

Multilateral approach to health care and well-being

THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

F MARAVER, L VELA, JA DE GRACIA, JM CARBAJO, C MORER





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Balneology in Spain 2019



Spas: 119

Hotel rooms: 19,154

Overnight stays: 4,047,000

Workers: 5,310

Costumers: 904,000

Invoicing: € 255,000,000





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

GOBIERNO DE ESPAÑA
VICERESIDENCIA SEGUNDA DEL GOBIERNO
MINISTERIO DE DERECHOS SOCIALES Y AGENDA 2030
SECRETARÍA DE ESTADO DE DERECHOS SOCIALES
IMERSO
AGENDA 2030
Instituto de Mayores y Servicios Sociales

Inicio El Inmerso Secciones informativas Introduce el texto BUSCAR

DIRECTO A...

NOTICIAS DESTACADAS

POR EL BROTE DE COVID-19...

- EL PROGRAMA DE TURISMO DEL IMERSO HA QUEDADO SUSPENDIDO POR UN MES
- EL PROGRAMA DE THERMALISMO DEL IMERSO PROSIGUE CON NORMALIDAD

11.03.2020
Nota informativa sobre la repercusión del coronavirus COVID-19 en los Programas de Turismo y de Thermalismo Social del Inmerso: el Programa de Thermalismo Social no se ve afectado por la suspensión por el momento



ATENCIÓN A LA CIUDADANÍA

901 109 899
INFORMACIÓN DEL IMERSO

SEDE ELECTRÓNICA

PRESENCIA DEL IMERSO EN LAS REDES SOCIALES

ÚLTIMAS NOVEDADES

03.06.2020
Nuevo artículo en el blog del CRE Alzheimer: estimulación en demencias avanzadas en casa

DIRECTO A...

NOTICIAS DESTACADAS

Por la situación de crisis sanitaria ocasionada por el COVID-19...

El Programa de Thermalismo del Inmerso ha quedado suspendido

17.03.2020
Suspensión del Programa de Thermalismo del Inmerso por la situación de crisis sanitaria provocada por el COVID-19



ATENCIÓN A LA CIUDADANÍA

901 109 899
INFORMACIÓN DEL IMERSO

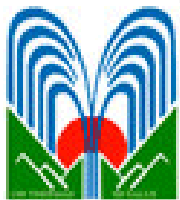
SEDE ELECTRÓNICA

PRESENCIA DEL IMERSO EN LAS REDES SOCIALES

ÚLTIMAS NOVEDADES

03.06.2020
Nuevo artículo en el blog del CRE Alzheimer: estimulación en demencias avanzadas en casa





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

2019

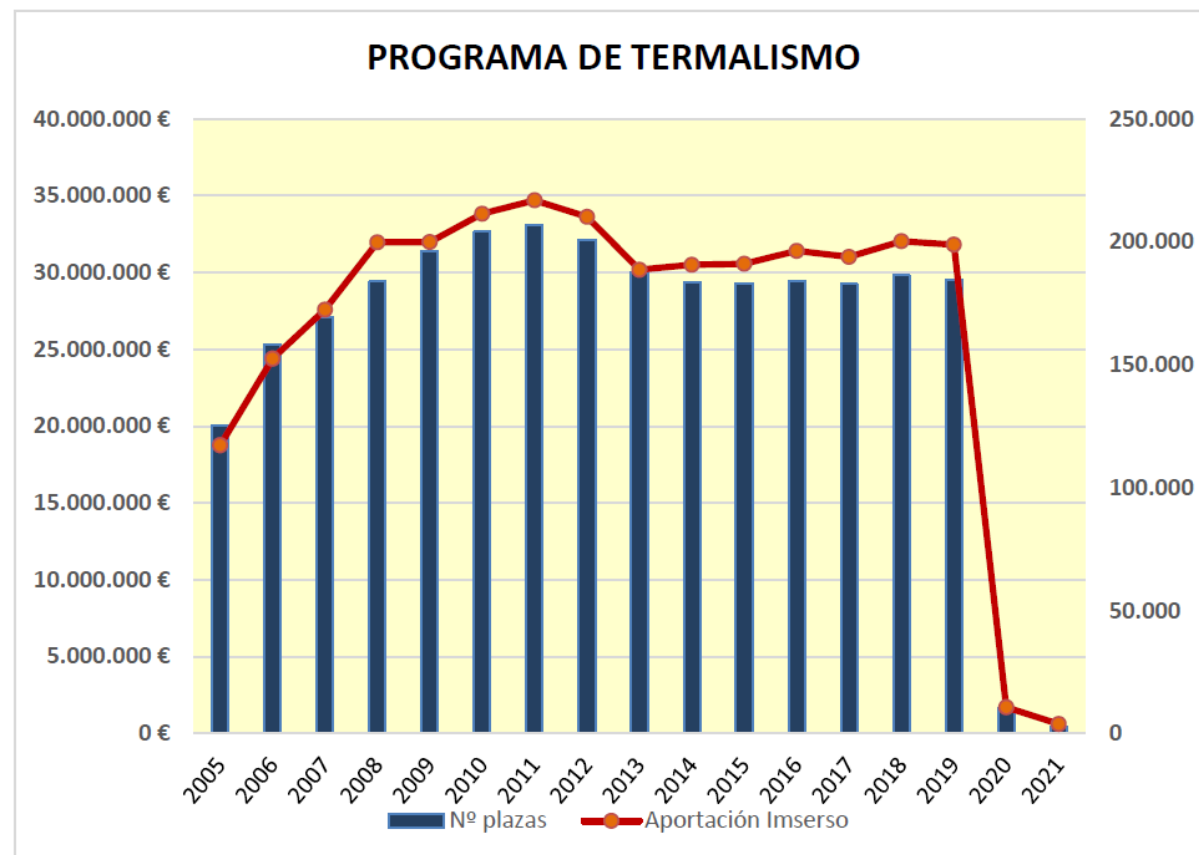
INDICADORES PARA EL SEGUIMIENTO DE OBJETIVOS	PROGRAMADO	REALIZADO
Nº de plazas previstas	208.500	184.440
Nº de beneficiarios previstos	198.075	184.440
Nº de estancias previstas en presupuesto	2.037.646	1.903.714
Coste total (en miles de euros)	35.869,66	32.015,14

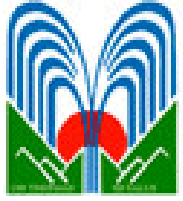
2020

INDICADORES PARA EL SEGUIMIENTO DE OBJETIVOS	PROGRAMADO	REALIZADO
Nº de plazas previstas	208.500	10.292
Nº de beneficiarios previstos	198.075	10.292
Nº de estancias previstas en presupuesto	1.808.528	104.204
Coste total (en miles de euros)	35.869,66	1.702,01

2021

INDICADORES PARA EL SEGUIMIENTO DE OBJETIVOS	PROGRAMADO	REALIZADO
Nº de plazas previstas	57.500	2.759
Nº de beneficiarios previstos	198.075	2.759
Nº de estancias previstas en presupuesto	1.808.528	26.991
Coste total (en miles de euros)	35.869,66	608





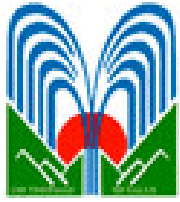
THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Adaptation of the social and health care programmes and services offered

Training of healthcare professionals

Consolidation of Research Groups in Health Resort Medicine

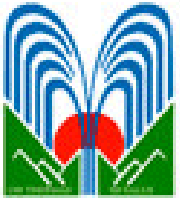




THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Adaptation of the social and health care programmes and services offered





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Adaptation of the social and health care programmes and services offered



1. Treatments:

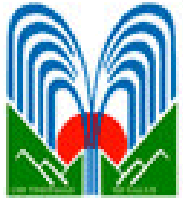
- Balneotherapy.
- Physiotherapy. Regenerative Medicine.
- Pain Treatment
- **Healthy and therapeutic exercise needs continuity outside the spa.**

2. Health Education

3. Prevention

4. Longevity plan





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Adaptation of the social and health care programmes and services offered



1. Treatments

2. Education (conferences, courses, workshops)

- Generic or Specific
- **Musculoskeletal pain**
 - Postural hygiene and movement ergonomics
 - Psychology of chronic pain
- Longevity. "How to live better more years" – Healthy lifestyle medicine: 5 Fundamental pillars
 1. Nutrition and Hydration
 2. Respiration and cellular oxygenation
 3. Physical Activity and Healthy Exercise
 4. Sleep, rest and relaxation. Combat stress
 5. Emotional Health. Cognitive Health

3. Cognitive health Prevention

4. Longevity Plan





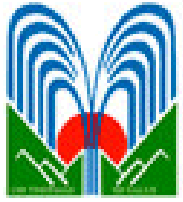
THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Adaptation of the social and health care programmes and services offered



1. Treatments
2. Health Education (conferences, courses, workshops)
3. Prevention (Primary and Secondary)
4. Longevity Plan
 - Medical History; Study of drug interactions and pharmacogenetics; Lifestyle History
 - Special tests (Genetic map, Telomere measurement, intestinal microbiota, etc.)
 - **Action Plans and Monitoring (ROSITA App Project)**





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Adaptation of the social and health care programmes and services offered

App ROSITA Project



Rosita: Ejercicios en casa +60 12+

Meditación, Yoga, Pilates...

Hearts Radiant SOCIEDAD LIMITED

★★★★★ 4,6 • 104 valoraciones

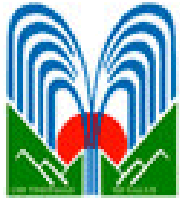
Gratis

- **Longevity plan from home.**
- **Daily exercise.**
- **Daily live classes.**
- **Live consultations**



SPIN OFF





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Training of healthcare professionals

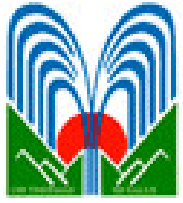
UEMS PRM Section and Board
EUROPEAN UNION OF MEDICAL SPECIALISTS
SECTION OF PHYSICAL AND REHABILITATION MEDICINE
EUROPEAN BOARD OF PHYSICAL AND REHABILITATION MEDICINE
UNION EUROPÉENNE DES MÉDECINS SPÉCIALISTES
SECTION DE MÉDECINE PHYSIQUE ET DE RÉADAPTATION
COLLÈGE EUROPÉEN DE MÉDECINE PHYSIQUE ET DE RÉADAPTATION

Medical Balneology and European Countries

Independent main competency	Competency or additional qualification	Included within the specialty of PRM	Not recognized as a medical competency or qualification
<ul style="list-style-type: none">• Italy• Spain• Turkey	<ul style="list-style-type: none">• Austria• Czech Republic• France• Germany• Hungary• Portugal• Serbia	<ul style="list-style-type: none">• Poland• Romania• Slovak Republic	<ul style="list-style-type: none">• Denmark• Sweden• The Netherlands

Gutenbrunner C, Bender T, Cantista P, Karagülle Z. A proposal for a worldwide definition of health resort medicine, balneology, medical hydrology and climatology. *Int J Biometeorol.* 2010;54(5):495-507.





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Consolidation of Research Groups in Health Resort Medicine

Complutense University Madrid

A Coruna University

Vigo University

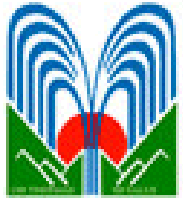
Extremadura University

Almería University

Granada University

Sevilla





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

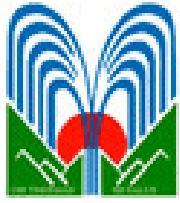
Complutense University Madrid - Medical Hydrology Group UCM-911757

**Vademécum de las aguas
minero-medicinales españolas**
Francisco Maraver, Iciar Vázquez
y Francisco Armijo (eds.)



EDICIONES
COMPLUTENSE





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Complutense University Madrid - Medical Hydrology Group UCM-911757

PELOIDS



International Journal of
*Environmental Research
and Public Health*



Article

Peloids as Thermo-therapeutic Agents

Francisco Maraver ^{1,2,*}, Francisco Armijo ^{1,2}, Miguel Angel Fernandez-Toran ³, Onica Armijo ⁴,
Jose Manuel Ejeda ¹, Iciar Vazquez ^{1,5}, Iluminada Corvillo ² and Silvia Torres-Piles ⁶

¹ Medical Hydrology Group, Department of Radiology, Rehabilitation & Physiotherapy, Complutense University of Madrid, Plaza Ramón y Cajal s/n, 28040 Madrid, Spain; farmijoc@ucm.es (F.A.); jmejeda@ucm.es (J.M.E.); i.vazquez@igme.es (I.V.)

² Professional School of Medical Hydrology, Complutense University of Madrid, Plaza Ramón y Cajal s/n, 28040 Madrid, Spain; corvillo@ucm.es

³ Balneario de Cofrentes, Calle Balneario s/n, 46625 Valencia, Spain; mangel@balneario.com

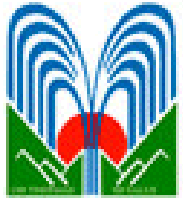
⁴ La Paz University Hospital, Universidad Autonoma de Madrid, Paseo de la Castellana 261, 28046 Madrid, Spain; onica.armijo@gmail.com

⁵ Geological Survey of Spain (IGME), Calle de la Calera 1, 28760 Madrid, Spain

⁶ Research Group in Immunophysiology, Department of Medical-Surgical Therapy, Faculty of Medicine, University of Extremadura, Avda. Elvas s/n, 06071 Badajoz, Spain; storres@unex.es

* Correspondence: fmaraver@ucm.es





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Complutense University Madrid - Medical Hydrology Group UCM-911757

Bottled Natural Mineral Water

ISSN (electrónico): 1699-5198 - ISSN (papel): 0212-1611 - CODEN NUHOEQ S.V.R. 318



Nutrición Hospitalaria



Artículo Especial

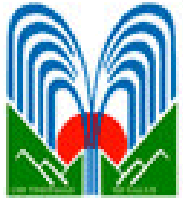
Importancia del consumo de agua en la salud y la prevención de la enfermedad:
situación actual

The importance of water consumption in health and disease prevention: the current situation

Jordi Salas-Salvadó^{1,2,3}, Francisco Maraver⁴, Leocadio Rodríguez-Mañas⁵, Miguel Sáenz de Pipaon^{6,7}, Isidro Vitoria⁸ y Luis A. Moreno^{2,9}

¹Universitat Rovira i Virgili. Departament de Bioquímica i Biotecnologia. Unitat de Nutrició Humana. Reus, Tarragona. Spain. ²Institut d'Investigació Sanitària Pere Virgili (IISPV). Hospital Universitari Sant Joan de Reus. Reus, Tarragona. Spain. ³Consorcio CIBER, M.P. Fisiopatología de la Obesidad y Nutrición (CIBEROBN). Instituto de Salud Carlos III (ISCIII). Madrid, Spain. ⁴Departamento de Radiología, Rehabilitación y Fisioterapia. Escuela Profesional de Hidrología Médica e Hidroterapia. Facultad de Medicina. Universidad Complutense de Madrid. Madrid. ⁵Servicio de Geriátrica. Hospital Universitario de Getafe. Getafe, Madrid, y CIBER de Fragilidad y Envejecimiento Saludable (CIBERFES). Instituto de Salud Carlos III. Madrid. ⁶Departamento de Neonatología. Hospital Universitario La Paz. Universidad Autónoma de Madrid. Madrid. ⁷Red de Salud Materno Infantil y Desarrollo (SAMID). Instituto de Salud Carlos III. Madrid. ⁸Unidad de Nutrición y Metabolopatías. Hospital Universitari i Politècnic La Fe. Valencia. ⁹Grupo GENUD (Growth, Exercise, Nutrition and Development). Universidad de Zaragoza. Instituto Agroalimentario de Aragón (IA2) e Instituto de Investigación Sanitaria de Aragón (IIS Aragón). Zaragoza





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Complutense University Madrid - Medical Hydrology Group UCM-911757


Mechanism of action

International Journal of Biometeorology (2020) 64:915–925
<https://doi.org/10.1007/s00484-019-01738-6>

SPECIAL ISSUE: BALNEOLOGY

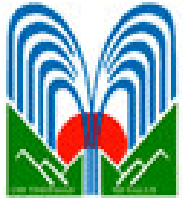


Efficacy of aquatic therapy for neck pain: a systematic review

Iluminada Corvillo^{1,2} · Francisco Armijo^{1,2} · Antonio Álvarez-Badillo^{1,2} · Onica Armijo² · Enrique Varela¹ · Francisco Maraver^{1,2} 

Received: 26 February 2019 / Revised: 29 May 2019 / Accepted: 30 May 2019 / Published online: 17 June 2019
© ISB 2019





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Complutense University Madrid - Medical Hydrology Group UCM-911757

Mechanism of action





International Journal of
*Environmental Research
and Public Health*



Article

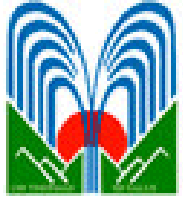
Evaluation of the Feasibility of a Two-Week Course of Aquatic Therapy and Thalassotherapy in a Mild Post-Stroke Population

Carla Morer ¹, Alfredo Michan-Doña ² , Antonio Alvarez-Badillo ³, Pilar Zuluaga ⁴
and Francisco Maraver ^{5,*} 

- ¹ Institut Català de la Salut, EAP 8K, Centro Atención Primaria Rio de Janeiro, UTAC Muntanya, 08016 Barcelona, Spain; cmorer.bcn.ics@gencat.cat
 - ² Departamento de Medicina, Instituto Investigación e Innovación Biomédica de Cádiz, Hospital Universitario de Jerez, Universidad de Cádiz, 11003 Cádiz, Spain; alfredo.michan@uca.es
 - ³ Department Radiology, Rehabilitation & Physiotherapy, Medicine School, Complutense University of Madrid, Plaza Ramón y Cajal s/n, 28040 Madrid, Spain; alvabadi@ucm.es
 - ⁴ Statistics and Operations Research Department, Medicine School, Complutense University of Madrid, Plaza Ramón y Cajal s/n, 28040 Madrid, Spain; pilarzul@ucm.es
 - ⁵ Professional School of Medical Hydrology, Complutense University, Plaza Ramón y Cajal s/n, 28040 Madrid, Spain
- * Correspondence: fmaraver@ucm.es

Received: 31 August 2020; Accepted: 2 November 2020; Published: 5 November 2020





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Complutense University Madrid - Medical Hydrology Group UCM-911757

Mechanism of action





International Journal of
*Environmental Research
and Public Health*



Article

Effects of Sodium Chloride-Rich Mineral Water on Intestinal Epithelium. Experimental Study

Pascual-Vicente Crespo ^{1,†}, Fernando Campos ^{1,†} , Manuel Leal ² and Francisco Maraver ^{2,3,*} 

¹ Tissue Engineering Group, Department of Histology, University of Granada, 18016 Granada, Spain; pvcrespo@ugr.es (P.-V.C.); fcampos@ugr.es (F.C.)

² Professional School of Medical Hydrology, Complutense University of Madrid, Plaza Ramón y Cajal s/n, 28040 Madrid, Spain; hidromed@ucm.es

³ Medical Hydrology Group, Department of Radiology, Rehabilitation & Physiotherapy, Complutense University of Madrid, Plaza Ramón y Cajal s/n, 28040 Madrid, Spain

* Correspondence: fmaraver@ucm.es

† These authors contributed equally to this work.





UNIVERSIDADE DA CORUÑA

THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Coruña University - Biomedical Research Institute of A Coruña (INIBIC)

Mechanism of action






International Journal of
Molecular Sciences



Article

Intraarticular Administration Effect of Hydrogen Sulfide on an In Vivo Rat Model of Osteoarthritis

Carlos Vaamonde-García ^{1,2,†} , Elena F. Burguera ^{2,3,†}, Ángela Vela-Anero ¹,
Tamara Hermida-Gómez ^{2,3}, Purificación Filgueira-Fernández ^{2,3},
Jennifer A. Fernández-Rodríguez ⁴, Rosa Meijide-Faílde ^{1,*}  and Francisco J. Blanco ^{2,5,*} 

- ¹ Grupo de Terapia Celular y Medicina Regenerativa, Universidad de A Coruña, Agrupación Estratégica CICA- INIBIC, Complejo Hospitalario Universitario A Coruña, Campus Oza, 15006 A Coruña, Spain; carlos.vaamonde.garcia@udc.es (C.V.-G.); velanero@gmail.com (Á.V.-A.)
- ² Grupo de Investigación en Reumatología (GIR), INIBIC-Complejo Hospitalario Universitario A Coruña, Sergas, As Xubias, 15006 A Coruña, Spain; elena.fernandez.burguera@sergas.es (E.F.B.); tamara.hermida.gomez@sergas.es (T.H.-G.); purificacion.filgueira.fernandez@sergas.es (P.F.-F.)





UNIVERSIDADE DA CORUÑA

THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Coruña University - Biomedical Research Institute of A Coruña (INIBIC)

Mechanism of action

Received: 14 December 2020

Revised: 17 June 2021

Accepted: 4 August 2021

DOI: 10.1111/hsc.13544

ORIGINAL ARTICLE

Health and
Social Care in the community

WILEY

A pilot randomized controlled trial of aquatic-based activities in a group occupational therapy program for adults living with serious mental illness in Spain

Mercedes Seoane-Bouzas¹ | Iván De-Rosende-Celeiro²  | Rosa Meijide-Failde³





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Coruña University - Biomedical Research Institute of A Coruña (INIBIC)

Mechanism of action



antioxidants



Article

Reduced Levels of H₂S in Diabetes-Associated Osteoarthritis Are Linked to Hyperglycaemia, Nrf-2/HO-1 Signalling Downregulation and Chondrocyte Dysfunction

María Piñeiro-Ramil ¹, Elena F. Burguera ², Tamara Hermida-Gómez ^{2,3,4}, Beatriz Caramés ²,
Natividad Oreiro-Villar ², Rosa Meijide-Faílde ¹, Francisco J. Blanco ^{2,3,*} and Carlos Vaamonde-García ^{2,5,*}

¹ Tissue Engineering and Cellular Therapy Group, Biomedical Research Institute of A Coruña (INIBIC), Centro de Investigaciones Científicas Avanzadas (CICA), Departamento de Fisioterapia, Medicina y Ciencias Biomédicas, Facultad de Fisioterapia, Universidade da Coruña, 15006 A Coruña, Spain; maria.pramil@udc.es (M.P.-R.); rosa.meijide.failde@udc.es (R.M.-F.)

² Grupo de Investigación en Reumatología, Instituto de Investigación Biomédica de A Coruña (INIBIC), Complejo Hospitalario Universitario de A Coruña (CHUAC), SERGAS, 15006 A Coruña, Spain; elena.fenandez.burguera@sergas.es (E.F.B.); tamara.hermida.gomez@sergas.es (T.H.-G.); beatriz.carames.perez@sergas.es (B.C.); natividad.oreiro.villar@sergas.es (N.O.-V.)





UNIVERSIDADE
DE VIGO

THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Vigo University - FA2 Research Group

Mechanism of action




cosmetics



Review

The Potential Use of Marine Microalgae and Cyanobacteria in Cosmetics and Thalassotherapy

M. Lourdes Mourelle * , Carmen P. Gómez and José L. Legido

Applied Physics Department, University of Vigo, Campus Lagoas-Marcosende s/n, 36310 Vigo, Spain;
carmengomez@uvigo.es (C.P.G.); xlegido@uvigo.es (J.L.L.)

* Correspondence: lmourelle@uvigo.es; Tel.: +34-696-413-531



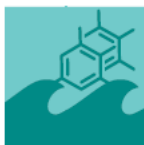


UNIVERSIDADE
DE VIGO

THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Vigo University - FA2 Research Group

PELOIDS





marine drugs



Review

Microalgal Peloids for Cosmetic and Wellness Uses

M. Lourdes Mourelle *, Carmen P. Gómez  and José L. Legido

FA2 Research Group, Applied Physics Department, University of Vigo, 36310 Vigo, Spain;
carmengomez@uvigo.es (C.P.G.); xllegido@uvigo.es (J.L.L.)

* Correspondence: lmourelle@uvigo.es; Tel.: +34-696413531





UNIVERSIDADE
DE VIGO

THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Vigo University - SERGAS

Mechanism of action

International Journal of Biometeorology (2019) 63:1161–1170

<https://doi.org/10.1007/s00484-019-01729-7>

ORIGINAL PAPER



Check for
updates

Efficacy of baths with mineral-medicinal water in patients with fibromyalgia: a randomized clinical trial

María Reyes Pérez-Fernández¹ • Natalia Calvo-Ayuso¹ • Cristina Martínez-Reglero² • Ángel Salgado-Barreira² • José Luis Muíño López-Álvarez³





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Extremadura University - Instituto Universitario de Investigación Biosanitaria (INUBE) Mechanism of action





International Journal of
Molecular Sciences



Review

Balneotherapy, Immune System, and Stress Response: A Hormetic Strategy?

Isabel Gálvez ¹ , Silvia Torres-Piles ² and Eduardo Ortega-Rincón ^{1,*} 

¹ Research Group in Immunophysiology, Department of Physiology, Faculty of Sciences, University of Extremadura, Avda. Elvas s/n, 06071 Badajoz, Spain; igalvez@unex.es

² Research Group in Immunophysiology, Department of Medical-Surgical Therapy, Faculty of Medicine, University of Extremadura, Avda. Elvas s/n, 06071 Badajoz, Spain; storres@unex.es

* Correspondence: orincon@unex.es; Tel.: +34-924-28-93-88





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Extremadura University - Instituto Universitario de Investigación Biosanitaria (INUBE)

Mechanism of action

INTERNATIONAL JOURNAL OF HYPERTHERMIA
2019, VOL. 35, NO. 1, 340–347
<https://doi.org/10.1080/02656736.2018.1502896>



OPEN ACCESS Check for updates

Innate/inflammatory bioregulation and clinical effectiveness of whole-body hyperthermia (balneotherapy) in elderly patients with osteoarthritis

Isabel Gálvez^a , Silvia Torres-Piles^b and Eduardo Ortega^a

^aResearch Group in Immunophysiology, Faculty of Sciences, Department of Physiology, University of Extremadura, Badajoz, Spain; ^bResearch Group in Immunophysiology, Faculty of Medicine, Department of Medical-Surgical Therapy, University of Extremadura, Badajoz, Spain





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Extremadura University - Instituto Universitario de Investigación Biosanitaria (INUBE)

Mechanism of action

International Journal of Biometeorology (2020) 64:927–935

<https://doi.org/10.1007/s00484-019-01748-4>

SPECIAL ISSUE: BALNEOLOGY



Effect of mud-bath therapy on the innate/inflammatory responses in elderly patients with osteoarthritis: a discussion of recent results and a pilot study on the role of the innate function of monocytes

Isabel Gálvez^{1,2} · Silvia Torres-Piles^{2,3} · Eduardo Ortega^{1,2} 





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Extremadura University - Instituto Universitario de Investigación Biosanitaria (INUBE)

Mechanism of action

Environmental Science and Pollution Research (2022) 29:8054–8073
<https://doi.org/10.1007/s11356-021-17780-0>

REVIEW ARTICLE



Balneotherapy year in review 2021: focus on the mechanisms of action of balneotherapy in rheumatic diseases

Sara Cheleschi¹ · Sara Tenti¹ · Iole Seccafico¹ · Isabel Gálvez^{2,3} · Antonella Fioravanti¹ · Eduardo Ortega^{2,4}

Received: 3 September 2021 / Accepted: 23 November 2021 / Published online: 29 November 2021
© The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature 2021





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Almería University

Mechanism of action




International Journal of
*Environmental Research
and Public Health*



Article

Comparison of Aquatic Therapy vs. Dry Land Therapy to Improve Mobility of Chronic Stroke Patients

Sagrario Pérez-de la Cruz 

Department of Nursing, Physiotherapy and Medicine, University of Almería, 04120 Almería, Spain;
spd205@ual.es; Tel.: +34-950-214-574





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Almería University

Mechanism of action



International Journal of
*Environmental Research
and Public Health*



Article

Influence of an Aquatic Therapy Program on Perceived Pain, Stress, and Quality of Life in Chronic Stroke Patients: A Randomized Trial

Sagrario Pérez-de la Cruz

Department of Nursing, Physiotherapy and Medicine, University of Almería, La Cañada de San Urbano, 04120 Almería, Spain; spd205@ual.es; Tel.: +349-50214574





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Almería University

Mechanism of action




International Journal of
*Environmental Research
and Public Health*



Article

Comparison between Three Therapeutic Options for the Treatment of Balance and Gait in Stroke: A Randomized Controlled Trial

Sagrario Pérez-de la Cruz 

Department of Nursing, Physiotherapy and Medicine, University of Almería, 04120 Almería, Spain;
spd205@ual.es; Tel.: +34-950-214-574





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Granada University

PELOIDS

Applied Clay Science 135 (2017) 465–474



Contents lists available at ScienceDirect

Applied Clay Science

journal homepage: www.elsevier.com/locate/clay



Research paper

Physical properties of peloids prepared with medicinal mineral waters from Lanjarón Spa (Granada, Spain)



María Virginia Fernández-González ^a, Juan Manuel Martín-García ^{a,*}, Gabriel Delgado ^a, Jesús Párraga ^a,
María Isabel Carretero ^b, Rafael Delgado ^a

^a Departamento de Edafología y Química Agrícola, Facultad de Farmacia, Universidad de Granada, Campus Universitario Cartuja, 18071, Granada, Spain

^b Departamento de Cristalografía, Mineralogía y Química Agrícola, Universidad de Sevilla, C/Prof. García González n° 1, 41012 Sevilla, Spain





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN




Granada University - Andalusian Institute of Earth Sciences

PELOIDS



Article

Colloidal and Thermal Behaviors of Some Venezuelan Kaolin Pastes for Therapeutic Applications

Ana C. Hernández^{1,2}, Mahmoud E. Awad^{3,4,5}, Williams Meléndez⁶, Gema González^{2,7}, Alberto López-Galindo^{4,*}, Rita Sánchez-Espejo⁵, Fátima García-Villén⁵ and César Viseras^{4,5}

¹ Instituto Universitario de Xeoloxía, Universidade da Coruña, 15071 A Coruña, Spain; hernandezsantome@gmail.com

² Laboratorio de Materiales, Centro de Ingeniería de Materiales y Nanotecnología, Instituto Venezolano de Investigaciones Científicas (IVIC), Apartado 20632, Caracas 1020, Venezuela; gemagonz@gmail.com

³ Department of Geology, Faculty of Science, Al Azhar University in Cairo, Cairo 11884, Egypt; mawad@azhar.edu.eg

⁴ Andalusian Institute of Earth Sciences (Consejo Superior de Investigaciones Científicas-University of Granada), Armilla, 18100 Granada, Spain; cviseras@ugr.es





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Granada University - Andalusian Institute of Earth Sciences

PELOIDS

Applied Clay Science 171 (2019) 110–117



Contents lists available at [ScienceDirect](#)

Applied Clay Science

journal homepage: www.elsevier.com/locate/clay



Research Paper

Rheology and cation release of tunisian medina mud-packs intended for topical applications

Imen Khiari^{a,b}, Rita Sánchez-Espejo^c, Fátima García-Villén^d, Pilar Cerezo^d, Carola Aguzzi^d, Alberto López-Galindo^e, Fakher Jamoussi^a, César Viseras^{d,e,*}

^a Georesources Laboratory of Water Research and Technologies Center (CERTE), Technopole Borj Cedria, BP273 Soliman, Tunisia

^b Faculty of Science of Sfax, Department of Earth Sciences, University of Sfax, Sfax, Tunisia

^c Aguas Termales de Graena, Cortes y Graena, Granada, Spain

^d Department of Pharmacy and Pharmaceutical Technology, University of Granada, Granada, Spain

^e IACT. Andalusian Institute of Earth Sciences (Consejo Superior de Investigaciones Científicas-University of Granada), Armilla, Granada, Spain





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Granada University

PELOIDS

Applied Clay Science 202 (2021) 105969



Contents lists available at [ScienceDirect](#)

Applied Clay Science

journal homepage: www.elsevier.com/locate/clay



Research Paper

Peloids prepared with three mineral-medicinal waters from spas in Granada. Their suitability for use in pelotherapy

María Virginia Fernández-González^a, María Isabel Carretero^b, Juan Manuel Martín-García^{a,*}, Alberto Molinero-García^a, Rafael Delgado^a

^a Departamento de Edafología y Química Agrícola, Facultad de Farmacia, Universidad de Granada, Campus Universitario Cartuja, 18071 Granada, Spain

^b Departamento de Cristalografía, Mineralogía y Química Agrícola, Universidad de Sevilla, C/Prof. García González nº 1, 41012 Sevilla, Spain





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Sevilla University - Andalusian Institute of Earth Sciences

PELOIDS

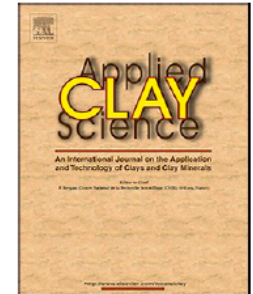
Applied Clay Science 189 (2020) 105526



Contents lists available at [ScienceDirect](#)

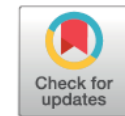
Applied Clay Science

journal homepage: www.elsevier.com/locate/clay



Review Article

Clays in pelotherapy. A review. Part I: Mineralogy, chemistry, physical and physicochemical properties



M. Isabel Carretero*

Dpto. Cristalografía, Mineralogía y Química Agrícola, Universidad de Sevilla, C/ Prof. García González n° 1, Sevilla 41012, Spain



Carretero MI. Appl. Clay Sci. 2020; 189: 105526



THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

Sevilla University - Andalusian Institute of Earth Sciences

PELOIDS

Applied Clay Science 189 (2020) 105531



Contents lists available at [ScienceDirect](#)

Applied Clay Science

journal homepage: www.elsevier.com/locate/clay



Review article

Clays in pelotherapy. A review. Part II: Organic compounds, microbiology and medical applications

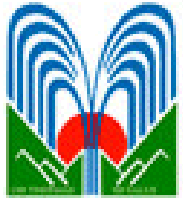


M. Isabel Carretero*

Dpto. Cristalografía, Mineralogía y Química Agrícola, Universidad de Sevilla, C/ Prof. García González n° 1, 41012 Sevilla, Spain



Carretero MI. Appl. Clay Sci. 2020; 189: 105531



THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

CONCLUSIONS

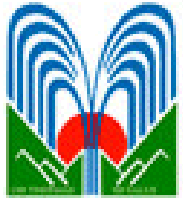
Adaptation of the social and health care programmes and services offered

We are coming out of a very difficult situation. There are Spas that did not open after the Pandemic. Spas are health centers. Its main function is to improve the health of its patients by treating their diseases. With all possible resources (Health Education, based on Lifestyle Medicine)

Training of healthcare professionals

Consolidation of Research Groups in Health Resort Medicine





THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

CONCLUSIONS

Adaptation of the social and health care programmes and services offered

Training of healthcare professionals

We hope to get the Competency training of the discipline "Medical Hydrology" that we consider the most suitable given the circumstances and similarity with the countries of our environment

Consolidation of Research Groups in Health Resort Medicine

Spa Medicine is based on scientific evidence, hence the importance of the consolidation of Spanish research groups that are very active





FEMTEC

WORLD FEDERATION OF HYDROTHERAPY AND CLIMATOTHERAPY
NGO IN OFFICIAL RELATION WITH WHO (WORLD HEALTH ORGANIZATION)



CASTEL SAN PIETRO TERME (Italy)

NOVEMBER 3-6, 2022

“THERMALISM IN CHANGING SOCIETIES”

Multilateral approach to health care and well-being

THE CHALLENGES FOR A NEW THERMALISM IN SPAIN

F MARAVER, L VELA, JA DE GRACIA, JM CARBAJO, C MORER

