



中药全球化联盟

CONSORTIUM FOR GLOBALIZATION OF CHINESE MEDICINE

19th Meeting of the Consortium for Globalization of Chinese Medicine

Chengdu, 22. – 24. August 2023

Regional Report

European Chapter

Report by Prof. Dr. Rudolf Bauer,
Chairman of the European Chapter of CGCM



中药全球化联盟

CONSORTIUM FOR GLOBALIZATION OF CHINESE MEDICINE



European Chapter

	CGCM Member Institutes	Contact Person	Email
1.	Medical University of Vienna	Prof. Ma Yan	yan.ma@meduniwien.ac.at
2.	TCM Research Center Graz, University of Graz and Medical University of Graz	Prof. Rudolf Bauer	rudolf.bauer@uni-graz.at
3.	German-Chinese Research Foundation of TCM (Deutsch-Chinesische Forschungsgemeinschaft)	Prof. Johannes Greten	info@dcfg-tcm.de
4.	HanseMerkur Center for TCM at the University Medical Center Hamburg Eppendorf	Dr. Sven Schroeder	Schroeder@tcm-am-UKE.de
5.	Sardegna Ricerche	Prof. Giovanni Biggio	songini@sardegna ricerche.it , dichiara@unica.it ; gadichia@tiscali.it ,
6.	The University of Florence	Prof. Anna Rita Bilia	ar.bilia@unifi.it
7.	Leiden University, European Center for Chinese Medicine and Natural Compounds (Dr. Mei Wang)	Dr. Mei Wang	mei.wang@subiomedicine.com



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CONSORTIUM FOR GLOBALIZATION OF CHINESE MEDICINE



European Chapter – Received Reports

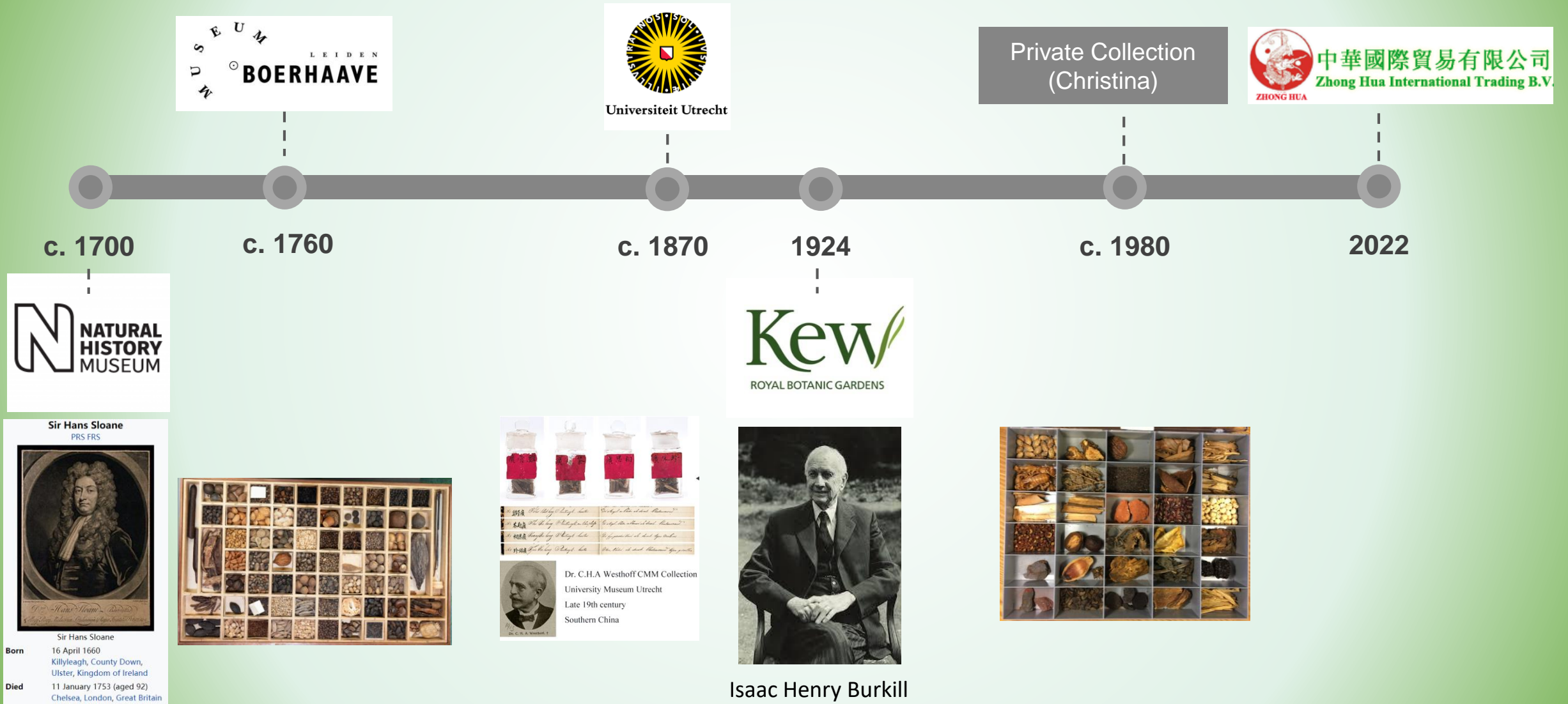
	CGCM Member Institutes	Contact Person	Email
1.	Medical University of Vienna	Prof. Ma Yan	yan.ma@meduniwien.ac.at
2.	TCM Research Center Graz, University of Graz and Medical University of Graz	Prof. Rudolf Bauer	rudolf.bauer@uni-graz.at
3.	German-Chinese Research Foundation of TCM (Deutsch-Chinesische Forschungsgemeinschaft)	Prof. Johannes Greten	info@dcfg-tcm.de
4.	HanseMerkur Center for TCM at the University Medical Center Hamburg Eppendorf	Dr. Sven Schroeder	Schroeder@tcm-am-UKE.de
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7.	Leiden University, European Center for Chinese Medicine and Natural Compounds (Dr. Mei Wang)	Dr. Mei Wang	mei.wang@subiomedicine.com

Report from **Leiden University -European Center for Chinese Medicine and Natural Compounds**



PhD Research :

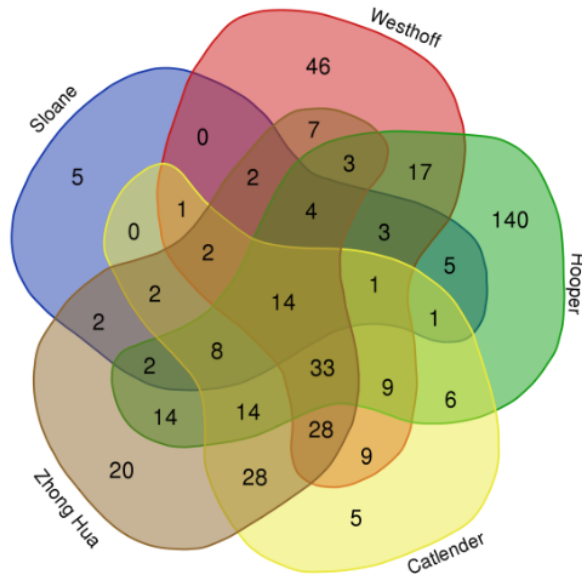
Chinese herbal medicine to Europe: A brief overview of the 5 collections



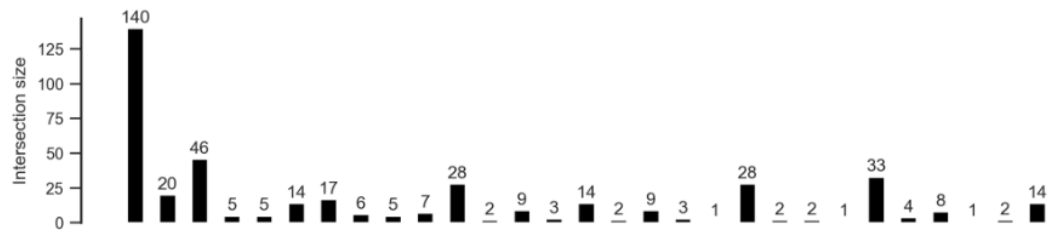
PhD Research: Chinese herbal medicine (CHM) to Europe:

A brief overview of the 5 collections

A



B



Conclusion:

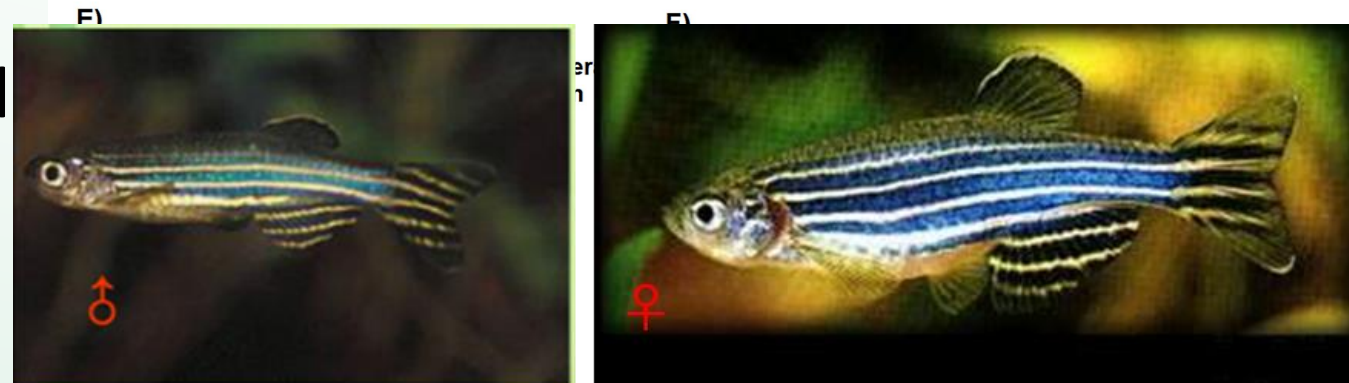
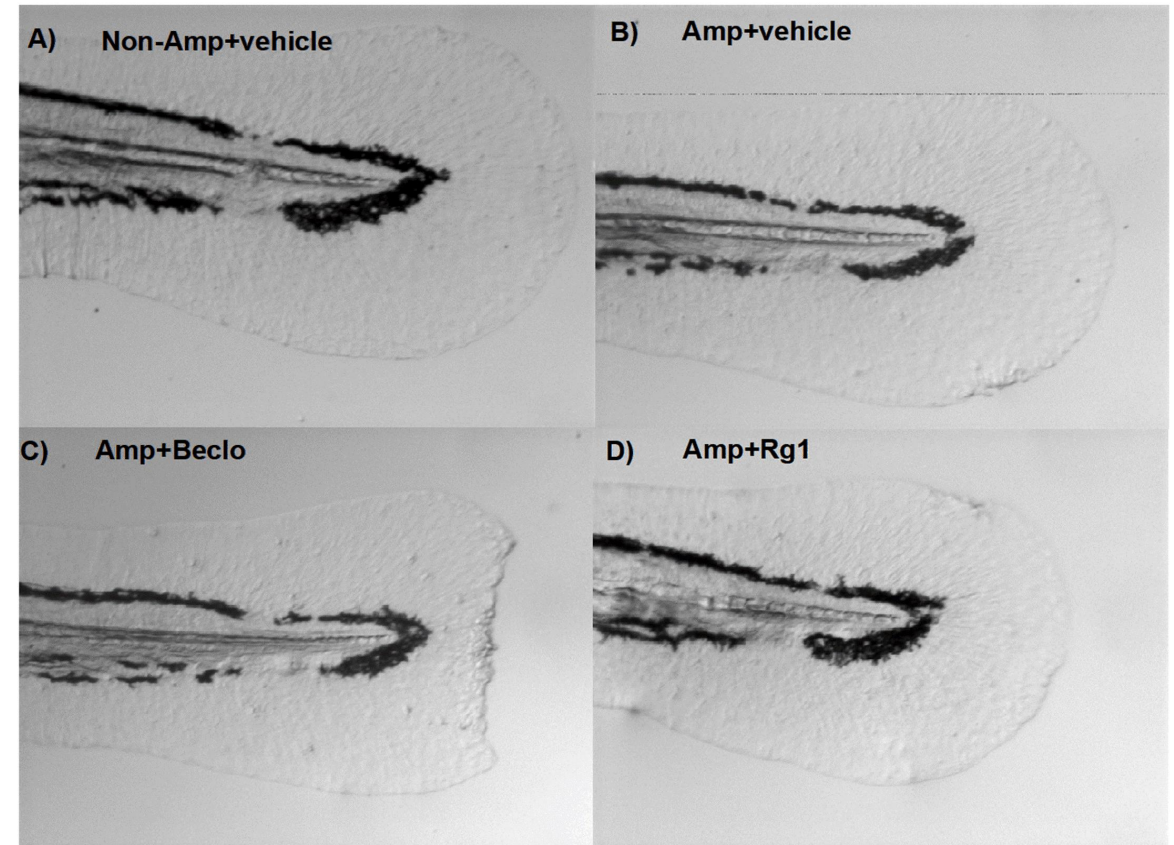
Over more than 300 years, the main body of CMM has hardly changed, about plant taxa and plant parts used.

The most prominent changes are related to conservation issues of threatened species, health safety and the discovery of new pharmacological applications of well-known species.

PhD Research : Traditional use of Ginseng revisited

Conclusion:

- Rg1 acts as a selective Glucocorticoid Receptor agonist in our zebrafish model, with anti-inflammatory effects but without affecting tissue regeneration.
- Ginsenosides may therefore represent a previously unknown class of selective glucocorticoid receptor agonists, opening a novel road towards the development of improved anti-inflammatory agents.



LU-European Center for Chinese Medicine and Natural Compounds Participate the education of TCM in the universities in the Netherlands



Dr. Herman J. Woerdenbag
Deputy Director Bachelor
Pharmacy University of Groningen
Department of Pharmaceutical
Technology and Biopharmacy



Course in 2023
45 students

**Joint education
programs for
bachelor and
master students**

Prof. Dr. Tinde van Andel
Wageningen University
Ethnobotany,
medicinal plants



Ethnobotany
Medical Plants
master course
40 students 2023



Dr. Mei Wang
LE-European center for
Chinese medicine
and natural compounds
Institute of Biology, Faculty of Science
Leiden University



Pharmaceuticals
from plants
master course
68 students 2023

LU-European Center for Chinese Medicine and Natural Compounds

**Co-Organization of the CGCM Workshop II - REGULATORY
PATHWAY for PLANT-BASED MEDICINES (150 min)**

Virtual Conference in English

Peikwen Cheng, Mei Wang and Yung-Chi Cheng

Saturday, 11 February 2023

- **08:00 – 10:30 US Eastern time**
- **14:00 – 16:30 Central European time**
- **21:00 – 23:30 Hong Kong time**
- **22:00 – 00:30 Tokyo time**

Report from

The University of Florence

**- Group of pharmaceutical technology
and chemistry of natural products
at the Department of Chemistry**

PHYTOLAB

Some International Involvements



Society for Medicinal Plant and Natural Product Research

2020-2021: Elected Vice-president of GA: Prof. A.R. Bilia

Joint Sino-Italian Laboratory on Traditional Chinese Medicine

- 2022: submitted a project with University of Tianjin in the framework of the joint lab collaboration.
- The project was submitted to the Ministry of Foreigner affairs of Italy and China.
- Title of the project: **“Regulating effects of POGOSTEMONIS HERBA and VERBENAE HERBA formulations on gastrointestinal function of long COVID-19 patients based on the diversity of 5-HT3 receptors”**

INVITED LECTURES RELATED TO TCM PLANTS AND CONSTITUENTS (2020-2022)

- **2020: LECTURE: “PANAX GINSENG, PELARGONIUM SIDOIDES E GLYCHYRRIZHA GLABRA PER IL SISTEMA IMMUNITARIO, QUALI EVIDENZE?”. WEBINAR SOCIETÀ ITALIANA DI MEDICINA FARMACEUTICA “BOTANICALS, INFIAMMAZIONE E SISTEMA IMMUNITARIO. IL POSSIBILE RUOLO DEGLI ESTRATTI BOTANICI NEL COVID 19”**
- **2020: PLENARY LECTURE: PROMISING ROLE OF MEDICINAL PLANTS OF THE EUROPEAN MARKET AS ADJUVANT THERAPY OF COVID 19”, “8TH WORLD INTEGRATIVE MEDICINE CONGRESS (WIMCO 2020)” (SHANGAI, CHINA)**
- **2021:LECTURE: NANOMEDICINE: A SMART APPROACH TO IMPROVE SOLUBILITY, STABILITY AND OPTIMISE BIOEFFICACY OF NATURAL PRODUCTS” INTERNATIONAL E-CONFERENCE ON MEDICINAL AND FOOD PLANT RESEARCH & 3RD SINO-CPLP SYMPOSIUM ON NATURAL PRODUCTS AND BIODIVERSITY RESEARCH**

PUBLICATIONS RELATED TO TCM PLANTS AND CONSTITUENTS (2019-2023)

1. Bilia AR, Nardiello P, Piazzini V, Leri M, Bergonzi MC, Bucciantini M, Casamenti F. Successful Brain Delivery of Andrographolide Loaded in Human Albumin Nanoparticles to TgCRND8 Mice, an Alzheimer's Disease Mouse Model. Front Pharmacol. 2019 Aug 22;10:910. doi: 10.3389/fphar.2019.00910.
2. Casamonti M, Risaliti L, Vanti G, Piazzini V, Bergonzi MC, Bilia AR. Andrographolide Loaded in Micro- and Nano-Formulations: Improved Bioavailability, Target-Tissue Distribution, and Efficacy of the “King of Bitters”. Engineering, February 2019, 5: 69-75.
3. Vanti G, Bani D, Salvatici MC, Bergonzi MC, Bilia AR. Development and Percutaneous Permeation Study of Escinosomes, Escin-Based Nanovesicles Loaded with Berberine Chloride. Pharmaceutics. 2019 Dec 15;11(12):682. doi: 10.3390/pharmaceutics11120682.
4. Landucci E, Pellegrini-Giampietro DE, Bilia AR, Bergonzi MC. Enhanced Neuroprotective Effects of Panax ginseng G115® and Ginkgo biloba GK501® Combinations In Vitro Models of Excitotoxicity. Int J Mol Sci. 2019 Nov 22;20(23):5872. doi: 10.3390/ijms20235872.
5. Bilia AR, Bergonzi MC. The G115 standardized ginseng extract: an example for safety, efficacy, and quality of an herbal medicine. Ginseng Res. 2020 Mar;44(2):179-193. doi: 10.1016/j.jgr.2019.06.003.
6. Risaliti L, Ambrosi M, Calamante M, Bergonzi MC, Lo Nostro P, Bilia AR. Preparation and Characterization of Ascosome Vesicles Loaded with Khellin. J Pharm Sci 2020 Jun 19:S0022-3549(20)30329-4. doi: 10.1016/j.xphs.2020.06.017.
7. Risaliti L, Pini G, Ascrizzi R, Donato R, Sacco C, Bergonzi MC, Salvatici C, Bilia AR. Artemisia annua essential oil extraction, characterization, and incorporation in nanoliposomes, smart drug delivery systems against Candida species. J Drug Deliv Sci Techn, 2020, 59: 101849.
8. Vanti G, Muti L, D'Ambrosio M, Grifoni L, Bergonzi MC, Luceri C, Bilia AR. Nanostructured Lipid Carriers Can Enhance Oral Absorption of Khellin, a Natural Pleiotropic Molecule. Molecules. 2021 Dec 17;26(24):7657. doi: 10.3390/molecules26247657.
9. Vanti G, Di Cesare Mannelli L, Micheli L, Cinci L, Grifoni L, Bergonzi MC, Ghelardini C, Bilia AR. The Anti-Arthritic Efficacy of Khellin Loaded in Ascorbyl Decanoate Nanovesicles after an Intra-Articular Administration. Pharmaceutics. 2021 Aug 17;13(8):1275. doi: 10.3390/pharmaceutics13081275.
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11. Grifoni L, Vanti G, Vannucchi MG, Bergonzi MC, Bilia AR. Development and evaluation of khellin-loaded microemulgel for dermatological applications. Planta Med. 2022 Mar 4. doi: 10.1055/a-1789-3112.
12. Vanti G, Capizzi M, Di Cesare Mannelli L, Lucarini E, Bergonzi MC, Ghelardini C, Bilia AR. Escinosomes: Safe and Successful Nanovesicles to Deliver Andrographolide by a Subcutaneous Route in a Mice Model of Oxaliplatin-Induced Neuropathy. Pharmaceutics. 2022 Feb 24;14(3):493. doi: 10.3390/pharmaceutics14030493.
13. Grifoni L, Vanti G, Vannucchi MG, Bergonzi MC, Bilia AR. Development and Evaluation of Khellin-loaded Microemulgel for Dermatological Applications. Planta Med. 2023 Jul;89(8):848-855. doi: 10.1055/a-1789-3112

High-Tech Acupuncture Research and Photobiomodulation



Dec. 1997 – March 2023



Gerhard Litscher

Univ.-Prof. MSc PhD MDsc



*The Chinese-German Research Foundation for
Traditional Chinese Medicine*



July, 2023

- President of the International Society for Medical Laser Applications (ISLA transcontinental; since 2012),
- German Vice President of the German-Chinese Research Foundation (DCFG) for TCM (since 2014),
- Honorary President of the European Federation of Acupuncture and Moxibustion Societies (2023)

Graz / Austria / Europe

10 Top References 2022/2023 – G. Litscher et al.

1. Ailioaie, L.M.; Ailioaie, C.; **Litscher, G.** Implications of SARS-CoV-2 Infection in Systemic Juvenile Idiopathic Arthritis. *Int. J. Mol. Sci.* **2022**, *23*, 4268. doi: [10.3390/ijms23084268](https://doi.org/10.3390/ijms23084268) **IF=6.206**
2. Ailioaie, L.M.; Ailioaie, C.; **Litscher, G.**; Chiran, D.A. Celiac Disease and Targeting the Molecular Mechanisms of Autoimmunity in COVID Pandemic. *Int. J. Mol. Sci.* **2022**, *23*, 7719. doi: [10.3390/ijms23147719](https://doi.org/10.3390/ijms23147719) **IF=6.208**
3. Preis, E.; Wojcik, M.; **Litscher, G.**; Bakowsky, U. Editorial on the “Special Issue in Honor of Dr. Michael Weber’s 70th Birthday: Photodynamic Therapy: Rising Star in Pharmaceutical Applications”. *Pharmaceutics* **2022**, *14*, 1786. doi: [10.3390/pharmaceutics14091786](https://doi.org/10.3390/pharmaceutics14091786) **IF=6.525**
4. Ailioaie, L.M.; Ailioaie, C.; **Litscher, G.** Light as a Cure in COVID-19: A Challenge for Medicine. *Photonics* **2022**, *9*, 686. doi: [10.3390/photonics9100686](https://doi.org/10.3390/photonics9100686) **IF=2.536**
5. **Litscher, G.** Integrative Medicine and Helmet Constructions—A Feature Article about Milestones and Perspectives. *Sci* **2022**, *4*, 38. doi: [10.3390/sci4040038](https://doi.org/10.3390/sci4040038) **IF=n.a.**
6. Ailioaie, L.M.; Ailioaie, C.; **Litscher, G.** Biomarkers in Systemic Juvenile Idiopathic Arthritis, Macrophage Activation Syndrome and Their Importance in COVID Era. *Int. J. Mol. Sci.* **2022**, *23*, 12757. doi: [10.3390/ijms232112757](https://doi.org/10.3390/ijms232112757) **IF=6.208**
7. **Litscher, G.** The Future of Laser Acupuncture—Robot-Assisted Laser Stimulation and Evaluation. *Life* **2023**, *13*, 96. doi: [10.3390/life13010096](https://doi.org/10.3390/life13010096) **IF=3.253**
8. Ailioaie, L.M.; Ailioaie, C.; **Litscher, G.** Photobiomodulation in Alzheimer’s Disease—A Complementary Method to State-of-the-Art Pharmaceutical Formulations and Nanomedicine? *Pharmaceutics* **2023**, *15*, 916. doi: [10.3390/pharmaceutics15090916](https://doi.org/10.3390/pharmaceutics15090916) **IF=6.525**
9. Chen, Y.-L.; Lan, K.-C.; Hou, M.C.; Tsai, H.-H.; **Litscher, G.** Reflex Auriculo-Cardiac (RAC) Induced by Auricular Laser and Needle Acupuncture: New Case Results Using a Smartphone. *Life* **2023**, *13*, 853. doi: [10.3390/life13030853](https://doi.org/10.3390/life13030853) **IF=3.253**
10. Ailioaie, L.M.; Ailioaie, C.; **Litscher, G.** Synergistic Nanomedicine: Photodynamic, Photothermal and Photoimmune Therapy in Hepatocellular Carcinoma: Fulfilling the Myth of Prometheus? *Int. J. Mol. Sci.* **2023**, *24*, 8308. doi: [10.3390/ijms24098308](https://doi.org/10.3390/ijms24098308) **IF=6.208**

Σ IF= 46.924 (2022/2023)

Helmet Constructions – Perspectives (High-Tech Acupuncture Research)



1997
**Non-Invasive
Neuromonitoring**

+



2020
**Transcranial
Photobiomodulation**

≈



2023
**Sensor-Controlled
Therapy-Helmet**

Litscher G. SCI (MDPI), Sept. 2022

iSyncWave

With personal permission of the
CEO of imedisync Dr. **Seung Wan
Kang** MD PhD (June 6, 2023)

Gerhard Litscher

激光针灸和 新型激光医学

格拉茨医科大学中医药研究中心



第一本中文激光针灸教科书



激光针灸的定义*：

“光子刺激穴位和区域，产生类似于针刺和针刺相关疗法的治疗效果，并带来有利的光生物调节作用 (Gerhard Litscher)

*) 以及各种光针灸

Laser Acupuncture and Innovative
Laser Medicine. Chinese textbook by
Prof. Gerhard Litscher



© Gerhard Litscher



**Report from
University of Graz,
Department of Pharmacognosy,
Institute of Pharmaceutical Sciences
TCM Research Center Graz –
Medicinal Plant Research**

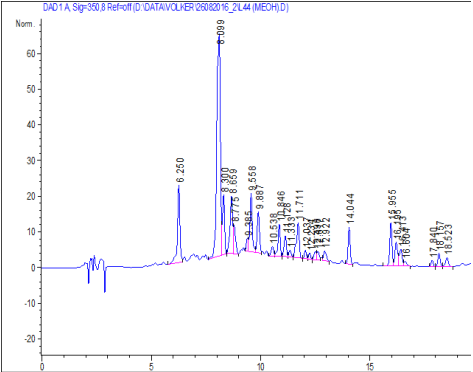
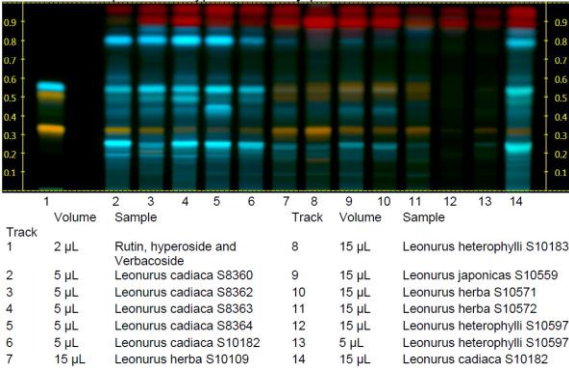
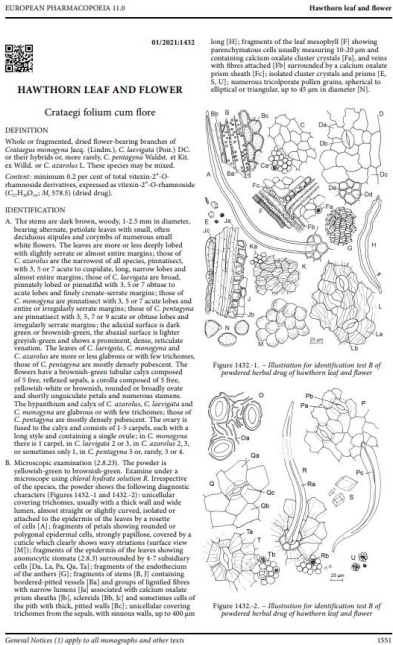
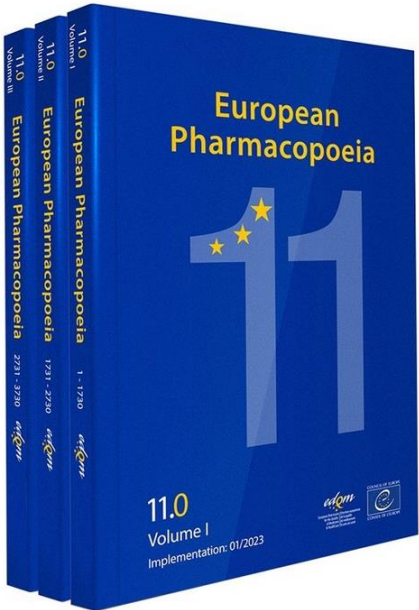


Research Center
Graz

Traditional Chinese Medicine

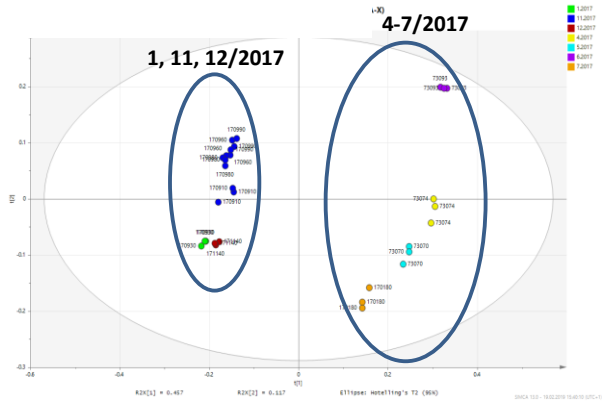
Analysis and quality control

(a) Development and evaluation of pharmacopoeia methods

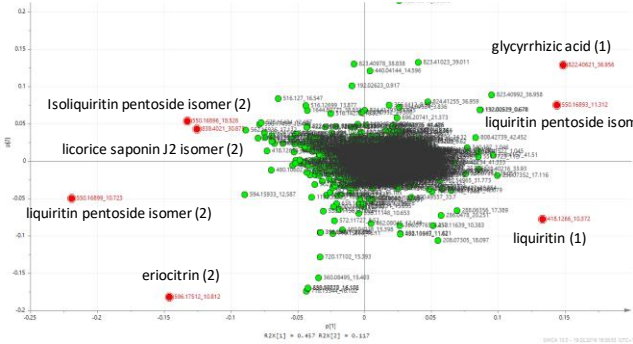


(b) Investigations on the applicability of metabolite profiling for the quality control of complex phytopharmaceuticals

- Analysis by UHPLC-HRMS, UHPLC-DAD, 1H-NMR
- Evaluation with MVDA



e.g.: Differences in the composition of different production batches can be seen in the PCA score scatter plot [t1/t2]



Loading plot gives clues to metabolites that cause the differences

Elaboration of Monographs for TCM herbs for PhEur

TCM-Working Party 建立传统中药研究团队
Chairman: Rudolf BAUER 鲍儒德

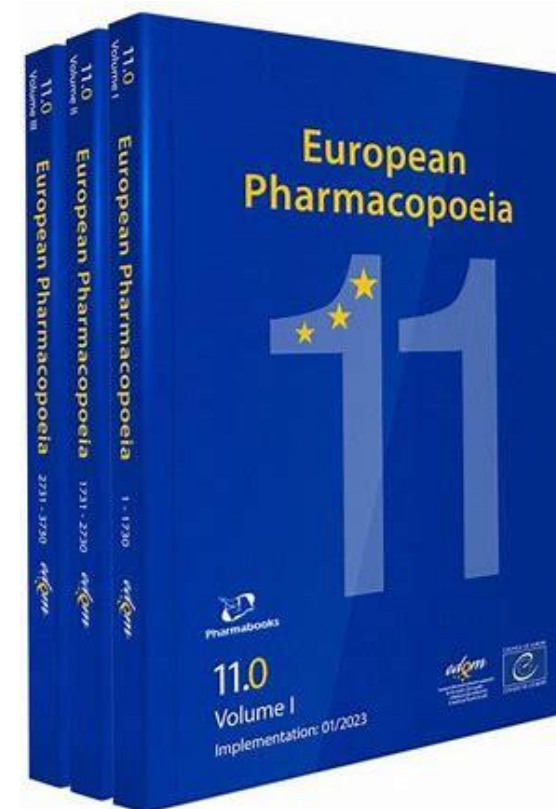


ANDLAUER	Béatrice	EDQM
BALD	Melanie	EDQM
BAUER	Rudolf	Austria
BILIA	Anna Rita	Italy
BUNNER	Benedicte	EDQM
CHAN	Kelvin	Hong Kong
CHANG	Yuan Shiun	Taiwan
CICI	Delina	EDQM
DUEZ	Pierre	Belgium
DUFAT	Thi Hanh	France
ERDOGAN ORHAN	Ilkay	Turkey
GASSER	Uwe Michael	Germany
GLOWNIAK	Kazimierz	Poland
GUO	De-An	China
HOENOW	Ruth	Germany
KEITEL	Susanne	EDQM
KOPF	Mireille	EDQM
LAENGER	Reinhard	Austria
NIKOLOVA	Villy	EDQM
PETER	Samuel	Switzerland
REICH	Eike	Switzerland
ROSE	Ulrich	EDQM
SABATINI-SAMORI	Cristiana	EDQM
SANZ-BISET	Jaume	EDQM
SCHERUEBL	Rosmarie	Germany
STOEGER	Erich Andreas	Germany
VIELLE	Cathie	EDQM
WANG	Mei	The Netherlands
WANG-TSCHEN	Shu-Yuan	Switzerland
WEBER	Matthias	EDQM

Elaboration of Monographs for TCM herbs for the European Pharmacopoeia 欧洲药典的中草药专著的确立和发展

Current Status of Work

- 84 Monographs adopted by the Eur. Pharmacopoeia Commission
欧洲药典委员会已接纳 84 篇专著
- Ca. 34 attributed to Specialists
约34人取得专家资格认证
- Monographs published as drafts in *PHARMEUROPA*
多篇论文作为草案在欧洲药典官网上发表
- Monographs for *General Methods* 通用方法论著:
 - Chapter on processing: 加工制作
 - Test for aristolochic acids: 马兜铃酸的检测
 - Test for pyrrolizidine alkaloids 咯烷类生物碱的测试





中國醫藥大學
China Medical University



Austria – Taiwan joint project

**Improving quality and safety
of Chinese herbal medicine by establishing high level
monographs for quality control**

Pls:

**Prof. Dr. Rudolf BAUER,
Prof. Dr. Yuan Shiun CHANG**



The project has been supported by OeAD within the program “Cooperation Development Research” and funded by the Austrian Federal Ministry of Education, Science and Research (TW 01 2020) together with the funding support from Ministry of Education, Taiwan.





中國醫藥大學
China Medical University



Graz

- *Lonicerae japonicae flos*
Jin Yin Hua - 金銀花
- *Pogostemonis herba*
Guang Huo Xiang - 廣藿香

Taichung

- *Polygoni multiflori caulis*
Ye Jiao Teng - 首烏藤
- *Hoveniae Semen*
Zhi Ju Zi - 枳椇子

Serving on the International Advisory Board of Hong Kong Chinese Materia Medica Standards





中药全球化联盟

CONSORTIUM FOR GLOBALIZATION OF CHINESE MEDICINE



Chromatographic Fingerprint Analysis of Herbal Medicines

Thin-Layer and High Performance
Liquid Chromatography of Chinese Drugs



Volume 3

Springer



FOR CLINICAL AND RESEARCH

Development of TLC and HPLC methods for quality control

- Overview of the analytical investigation of >140 Chinese herbal drugs in 4 volumes
- TLC, HPLC and GC analytical methods
- TLC results are shown in numerous color figures.
- Bioactive constituents, pharmacological and biological activities as well as their therapeutic applications are outlined



Prof. em. Dr. Dr. h.c. mult. Hildebert Wagner
passed away on 5th of November 2021
in the age of 92

Review Article

Traditional Chinese Medicines Against COVID-19: A Global Overview

Chang-Liang Yao^a, Wen-Long Wei^a, Jian-Qing Zhang^a, Qi-Rui Bi^a, Jia-Yuan Li^a, Ikhlas Khan^b, Rudolf Bauer^c, De-An Guo^a

^aShanghai Research Center for Modernization of Traditional Chinese Medicine, National Engineering Laboratory Research Center for TCM Standardization Technology, Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Shanghai, China, ^bNational Center for Natural Products Research, School of Pharmacy, University of Mississippi, MS, USA, ^cDepartment of Pharmacognosy, Institute of Pharmaceutical Sciences, University of Graz, Graz, Austria

Abstract

Coronavirus disease 2019 (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2, continues to be a global concern. Traditional Chinese medicines (TCMs) are an important element of the fight against COVID-19 in China. The combined application of TCMs and conventional medicines in the treatment of COVID-19 has achieved beneficial results, including the resolution of symptoms, prevention of disease progression, and reduced mortality. In this review, we summarize and discuss the current applications of TCMs with respect to COVID-19, as well as update the preclinical and clinical research, including chemical analysis, molecular mechanisms, quality control, drug development, and studies of clinical efficacy. The expectation is that a better understanding of the roles of TCMs against COVID-19 will improve the response to COVID-19, both in China and globally.

Sino-Austrian Joint Research Project – Metabolic and pharmacological profiling of the TCM formula Hanshiyi used for the treatment of COVID-19



Cooperation partners

Austria

- PI: Prof. Dr. Dr. h.c. Rudolf BAUER, Institute of Pharmaceutical Sciences, University of Graz, Austria
- Priv.-Doz. Dr. nat. techn. Dagmar BRISLINGER, MSc., Gottfried Schatz Research Center for Cell Signaling, Metabolism and Aging, Medical University of Graz, Austria
- Mag. pharm. Dr. rer. nat. Eva-Maria PFERSCHY-WENZIG, Institute of Pharmaceutical Sciences, University of Graz, Austria
- Mag. pharm. Stefanie TIEFENBACHER (PhD student), Institute of Pharmaceutical Sciences, University of Graz, Austria

China

- PI: Academician Prof. Dr. TONG Xiaolin, Department of Endocrinology, Guang'anmen Hospital, CACMS, Beijing, China
- Prof. Dr. LI Min, Department of Endocrinology, Guang'anmen Hospital, China Academy of Chinese Medical Sciences, Beijing
- Dr. YAO Yangfeng, Institute of Virology, Wuhan National Bio-Safety Level 4 Lab of CAS, Wuhan, China
- Assoc. Prof. Dr. GAO Juntao, National Research Center for Information Science and Technology, Tsinghua University, Beijing
- Dr. TIAN Jiaxing, Department of Endocrinology, Guang'anmen Hospital, CACMS, Beijing
- Dr. HAN Lin, Department of Endocrinology, Guang'anmen Hospital, CACMS, Beijing
- Dr. ZHOU Yanyan, Institute of Chinese Materia Medica, CACMS, Beijing
- Dr. WANG Weihao, Institute of Chinese Materia Medica, CACMS, Beijing
- GOU Xiaowen, MSc, Department of Endocrinology, Guang'anmen Hospital, CACMS, Beijing
- YAO Chensi, MSc, Department of Endocrinology, Guang'anmen Hospital, CACMS, Beijing

Published research papers related to TCM 2020 – 2023 / 1



Stallinger A, Kretschmer N, Kleinegger F, Brvar L, Liegl-Atzwanger B, Prokesch A, Durchschein C, Bauer R, Deutsch A, Rinner B,
 β,β -Dimethylacrylshikonin Induces Apoptosis in Melanoma Cell Lines by NOXA Upregulation,
J Nat Prod. 83(2): 305-315 (2020) doi: 10.1021/acs.jnatprod.9b00719

Resetar M, Liu X, Herdlinger S, Kunert O, Pferschy-Wenzig EM, Latkolik S, Steinacher T, Schuster D, Bauer R, Dirsch VM.
Polyacetylenes from *Oplopanax horridus* and *Panax ginseng*: Relationship between Structure and PPAR γ Activation
J Nat Prod. 83(4): 918-926 (2020) doi: 10.1021/acs.jnatprod.9b00691.

Hensel A, Bauer R, Heinrich M, Spiegler V, Kayser O, Hempel G, Kraft K.
Challenges at the Time of COVID-19: Opportunities and Innovations in Antivirals from Nature
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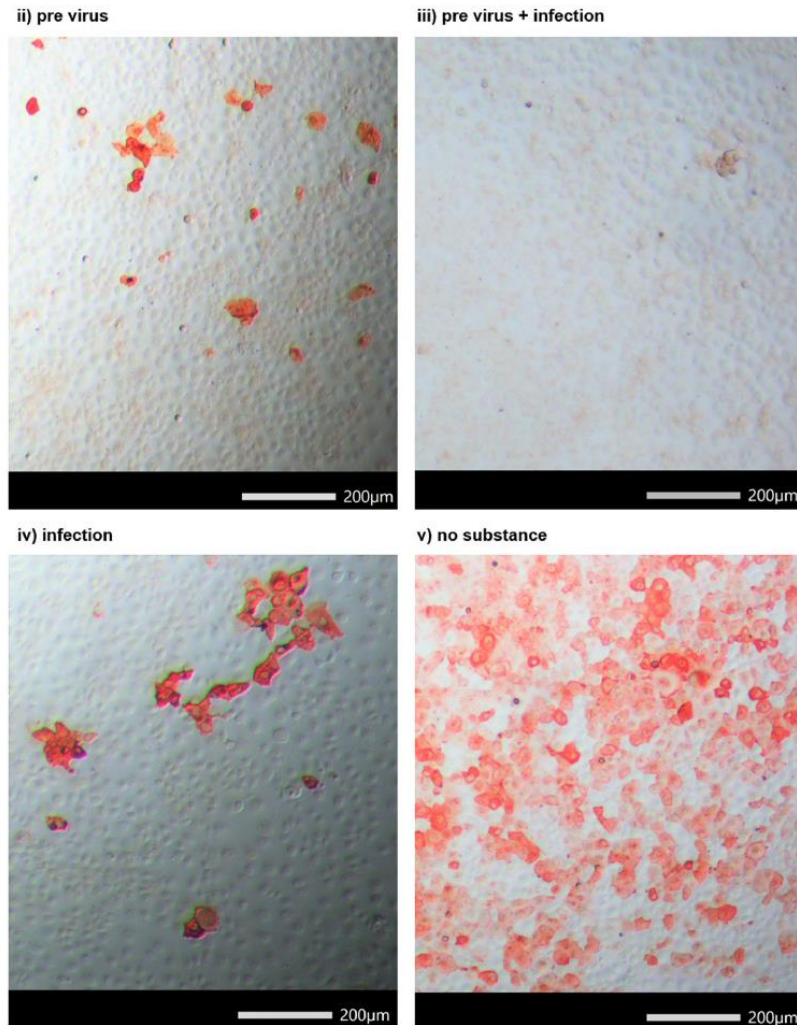


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- Xuehong Nöst, “A metabolomics approach for the holistic investigation of two complex herbal TCM formulations”, Graz 23. March 2020
- Teresa Marie Pirker, “Investigations on anti-inflammatory properties of megastigmane-containing plants with a special focus on β -damascenone and *Osmanthus fragrans*”, Graz 17. June 2021
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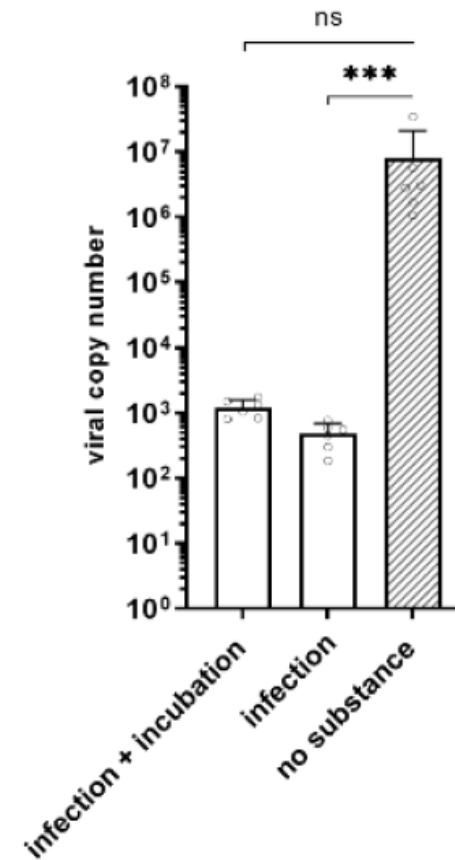
SARS-CoV-2 neutralizing activity of polyphenols in a special green tea extract preparation

Eva Kicker, Gerolf Tittel, Tanja Schaller, Eva-Maria Pferschy-Wenzig, Kurt Zatloukal, Rudolf Bauer, *Phytomedicine* 98:153970 (2022)

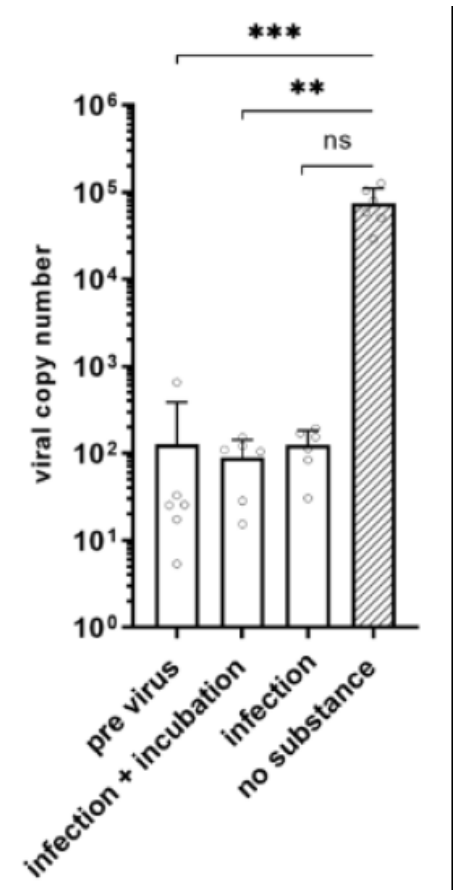


SARS-CoV-2 specific immunohistochemical staining (IHC) of cells treated with different infection protocols.

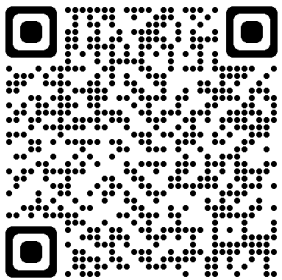
SARS-CoV-2 beta-variant



SARS-CoV-2 delta-variant



Mean \pm SD of $n \geq 6$ replicates per tested condition; including single data points. Assay readout: qRT-PCR with SARS-CoV-2 specific primers and probe; viral copy numbers were calculated based on a serial diluted standard curve. The graphs were analysed for significance with Kruskal-Wallis test using Graphpad Prism 9 ($p < 0.0001$ (***) (A) and $p = 0.0016$ (**) (B)).



DAS BARRIERE-SPRAY

Das Barriere-Spray ist ein neuartiges Medizinprodukt. Es dient zum Schutz vor Tröpfcheninfektionen mit Viren im hinteren Rachenraum. Zielgerichtet über den 6 cm langen Adapter gesprüht, bildet die Lösung im Rachen einen Film, der die Schleimhaut wie eine Barriere gegen das Eindringen von Viren überzieht, dort wo sich Virencluster bilden können.

Die Formel enthält auch Grüntee Extrakt, der antivirale = gegen Viren gerichtete ¹ Eigenschaften hat. Das Barriere-Spray ist innovativ und einzigartig. Es ist sicher, gut verträglich und unbedenklich. Entwickelt und hergestellt in Deutschland für den internationalen Markt.

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