DESCRIPTION

Phytomedicine is primarily a therapy-oriented Journal. Phytomedicine publishes innovative studies on efficacy, safety, quality and mechanisms of action of specified plant extracts, phytopharmaceuticals and their isolated constituents. This includes clinical, pharmacological, pharmacokinetic, and toxicological studies of specified herbal medicinal products, herbal preparations and purified compounds which have a defined and consistent quality assuring reproducible pharmacological activity.

Phytomedicine was founded in 1994 to focus and stimulate research in this particular field and to set internationally accepted scientific standards for pharmacological studies, proof of clinical efficacy and safety of phytomedicines. The main aims of Phytomedicine are associated with the integration of phytopreparations into conventional/official medicine.

The journal covers the following sections:
Clinical pharmacology and toxicology (randomized, placebo controlled, double blind, and observational open label studies) Behavioural, mental, affective, and stress-associated disorders Age-associated disorders Neuropharmacology Endocrine pharmacology Metabolic syndrome and obesity Cancer Immunopharmacology, inflammation Infectious diseases Pulmonary, gastrointestinal, cardiovascular, and urogenital diseases Systems biology Safety assessment, pre-clinical toxicology, interaction with drugs and adverse events of herbal preparations Pharmacokinetic of natural compounds Standardization of herbal preparations Legislation of botanicals Invited reviews

The directions of Phytomedicine are known to provide profound scientific background in Herbal Medicinal Products, their reproducible Quality and evidence based therapeutic efficacy. Since then quality criteria and standardization methods were defined and the European Medical Agency has elaborated numerous guidelines for the conduction of clinical studies and preparation of Herbal Medicinal Products. In total 107 ESCOP monographs have been produced and submitted to EMA. Many new analytical methods and instruments were implemented both for analysis and standardization of herbal Substances, herbal preparations and their bioassays and tremendous work has been carried out to remain aligned with these intentions during the last 18 years.

Nowadays important topics remain to be approached, such as harmonization of the regulatory frameworks in Europe, America, Asia and Australia or the legislation of various "botanicals", where strict differentiation of requirements for health claims of herbal medicinal product, dietary supplements and nutraceuticals are required.
AUDIENCE
Pharmacologists, toxicologists, pharmacists, pharmacognosists, phytotherapists (clinicians), biochemists, botanists, general practitioners

IMPACT FACTOR
2018: 4.180 © Clarivate Analytics Journal Citation Reports 2019

ABSTRACTING AND INDEXING
Biochemistry and Biophysics Citation Index
BIOSIS Citation Index
Chemical Abstracts
CINAHL
Cumulative Index for Nursing and Allied Health Literature
Elsevier BIOBASE
Embase
MANTIS
PubMed/Medline
NAPRALERT (Natural Products Alert)
Research Alert
Science Citation Index
Web of Science
Scopus
Current Contents - Life Sciences
Current Contents - Clinical Medicine

EDITORIAL BOARD

Editor-in-Chief
Thomas Efferth, Johannes Gutenberg Universität Mainz, Dept. of Pharmaceutical Biology, Staudinger Weg 5, 55128, Mainz, Germany

Co-Editors
Susana Zacchino, PhD., Chief Pharmacognosy Area, National University of Rosario, 2000, Rosario, Argentina

Associate Editors
Maurizio Battino, Università Politecnica delle Marche, Dipartimento di Scienze Cliniche Specialistiche ed Ortostomatologiche, Via Raineri, 60100, Ancona, Italy
Milan Georgiev, Bulgarian Academy of Sciences, Inst. of Microbiology, 139 Ruski Boulevard, 4000, Plovdiv, Bulgaria
David Yue-Wei Lee, Harvard Medical School, McLean Hospital, 115 Mill Street, Belmont, MA 02478, United States
Liang Liu, Macau University of Science and Technology State Key Laboratory of Quality Research in Chinese Medicines, Avenida Wai Long, Taipa, Macao
Xiaoyan Shen, Fudan University, School of Pharmaceutical Sciences, Dept. of Pharmacology, No. 826, Zhangcheng Road, 201203, Shanghai, China
Suowen Xu, UNIVERSITY OF ROCHESTER, Rochester, 14623, United States

Young Investigator Associate Editor
Haitao Lu, Shanghai Jiao Tong University, Shanghai Center for Systems Biomedicine, 800 Dongchuan Road, 20024, Minhang, China

Honorary and Founding Editor
Hildebert Wagner, Ludwig Maximilian University Munich Chair of Pharmaceutical Biology Biotechnology, Butenandtstr. 5-13, 81377, München, Germany

Founding Editor
Norman Farnsworth †, Chicago, United States
Ex Officio Editor
Mark Blumenthal, American Botanical Council, Austin, USA (Executive Director ABC)
Liselotte Krenn, Department of Pharmacognosy, University of Vienna, Austria (President ESCOP)

Managing Editor
Ingrid Maier, Munich, Germany
Janine Naß, Mainz, Germany

Editorial Board
Rajesh Agarwal, University of Colorado Denver Department of Pharmaceutical Sciences, Aurora, United States
Suresh V. Ambudkar, National Cancer Institute, NIH, Bethesda, MD, United States
Jay D. Amsterdam, University City Science Center, Philadelphia, United States
Yoshinori Asakawa, Tokushima Bunri University Faculty of Pharmaceutical Sciences, Tokushima, Japan
Jan Baak, Stavanger University Hospital, Stavanger, Norway; Vrije Universiteit, Amsterdam, Netherlands; University of Siena, Siena, Italy
Davide Barreca, University of Messina, Department of Chemical, Biological, Pharmaceutical and Environmental Sciences, Messina, Italy
Rudolf Bauer, Karl Franzens University Graz Pharmacognosy, Graz, Austria
Anupam Bishayee, Lake Erie College of Osteopathic Medicine, Erie, School of Pharmacy, Erie, United States
Benjamin Bonavida, University of California Los Angeles David Geffen School of Medicine, Los Angeles, United States
Kerry Bone, Australian College of Phytotherapy, Warwick, Australia
Marc Diederich, Seoul National University College of Pharmacy, Seoul, Republic of Korea
Edzard Ernst, University of Exeter College of Life and Environmental Sciences, Exeter, United Kingdom
Fabio Firenzuoli, University of Florence, Firenze, Italy
Yujie Fu, Beijing Forestry University, The College of Forestry, Beijing, China
Sudeep Gautam, National Institute on Aging Diabetes Section, Baltimore, United States
Jörg Grünwald, Analyze & Realize GmbH, Berlin, Germany
Bill Gurlie, University of Arkansas for Medical Sciences, Dept. of Pharmaceutical Sciences, Little Rock, United States
Karin Gustafson, NCI at Frederick, Frederick, United States
Hans Häberlein, Rheinisch Friedrich Wilhelms University Bonn Institute of Biochemistry and Molecular Biology, Bonn, Germany
Michael Heinrich, University College London School of Pharmacy, London, United Kingdom
Wen Luan Hsiao, Macau University of Science and Technology, Macau Institute for Applied Research in Medicine and Health, Taipa, Macao
Olaf Kelber, Steigerwald Arzneimittelwerk GmbH, Darmstadt, Germany
Sami Khalid, University of Khartoum, Faculty of Pharmacy, Khartoum, Sudan
Haroon Khan, Abdul Wali Khan University Mardan Department of Pharmacy, Mardan, Pakistan
Ikhlas Khan, University of Mississippi, National Center for Natural Products Research, University, United States
Mohamed Khayyal, Cairo University Faculty of Pharmacy, Cairo, Egypt
Werner Knöss, Federal Institute for Drugs and Medical Devices, Bonn, Germany
Victor Kuete, University of Dschang, Department of Biochemistry, Bafoussam, Cameroon
Ajaikumar Kunnumakkara, Indian Institute of Technology (IIT) Guwahati, Dept. of Biotechnology, Assam, India
Guillermo Labadie, Rosario National University Department of Organic Chemistry, Rosario, Argentina
Marie-Aleth Lacaille-Dubois, Université de Bourgogne, Laboratoire de Pharmacognosie, Dijon, France
Hsin-Chih Lai, Rockefeller University, New York, USA
Clara Lau, Chinese University of Hong Kong Institute of Chinese Medicine, Shatin, Hong Kong
Z. Carl Lin, MCLEAN HOSPITAL, Belmont, United States
Randi Luciano, Yale University Department of Internal Medicine, New Haven, United States
Rather Ahmad Manzoor, Council for Scientific and Industrial Research (CSIR), Indian Institute of Integrative Medicine, Srinagar, India
Jay Sharan Mishra, University of Wisconsin, Department of Comparative Biomedical Sciences, Madison, United States
Héctor Ricardo Morbidoni, National University of Rosario Faculty of Medical Sciences, Rosario, Argentina
Maria José Morilla, Universidad Nacional de Quilmes, Departament of Science and Technology, Nanomedicine Research Program, Buenos Aires, Argentina
Pulak Kumar Mukherjee, Jadavpur University, School of Natural Product Studies, Kolkata, India
Seyed Mohammad Nabavi, Tehran University of Medical Sciences, Biotechnology, Tehran, Iran, Islamic Republic of
Koji Nakanishi, Columbia University Department of Chemistry, New York, United States
Ferdinando Nicoletti, University of Catania Department of Biomedical and Biotechnological Sciences, Catania, Italy
Rainer Nowack, Dialysezentrum Lindau-Lindenberg, Innere Medizin und Nephrologie, Lindau, Germany
Elin Olafsdottir, University of Iceland Faculty of Pharmaceutical Sciences, Reykjavik, Iceland
Alexander Orekhov, Institute of General Pathology and Physiopathology, Moskva, Russian Federation
Alexander Panossian, EuroPharmaUSA Inc., Stockholm, Sweden
Jinyong Peng, Dalian Medical University, College of Pharmacy, Dalian, China
Kannan RR Rengasamy, Konkuk University, Department of Bioresources and Food Science, Seoul, Korea, Republic of
Antonieta Rojas de Arias, Centro para el Desarrollo de la Investigacion Cientifica (CEDIC), Asuncion, Paraguay
Lorenz Schild, University of Magdeburg, Dept. Clinical Chemistry and Pathobiology, Magdeburg, Germany
Paul Schnitzler, Heidelberg University Hospital Centre for Infectiology, Heidelberg, Germany
Dipali Sharma, Johns Hopkins Medicine Sidney Kimmel Comprehensive Cancer Center, Baltimore, United States
Alexander Shikov, Saint Petersburg Institute of Pharmacy, Kuzmolovo P 245, Russian Federation
Leandros Skaltsounis, National and Kapodistrian University of Athens, Athina, Greece
Barbara Steinhoff, German Medicines Manufacturers’ Association, Herbal and Homoeopathic Medicines, Bonn, Germany
Hermann Stuppner, University of Innsbruck Department of Pharmacognosy, Innsbruck, Austria
Gudrun Ulrich-Merzenich, University of Bonn, University Clinic Center, Bonn, Germany
Jian Wang, Johns Hopkins University School of Medicine, Baltimore, United States
Oliver Werz, Jena University Hospital, Jena, Germany
Vincent Kam Wai Wong, Macau University of Science and Technology, Macau Institute for Applied Research in Medicine and Health, Taipa, Macao
Wanying Wu, Shanghai Institute of Materia Medica Chinese Academy of Sciences, Shanghai, China
Jianbo Xiao, University of Macau, Taipa, Macao
Pei-gen Xiao, Chinese Academy of Medical Sciences & Peking Union Medical College Institute of Medicinal Plant Development, Haidian District, China
Cheng-Chia Yu, Chung Shan Medical University College of Oral Medicine, Taichung, Taiwan
Su Zeng, Zhejiang University College of Pharmaceutical Sciences, Hangzhou, China
Hua Zhou, Macau University of Science and Technology, Macau Institute for Applied Research in Medicine and Health, Taipa, Macao
INTRODUCTION

PHYTOMEDICINE

International Journal of Phytotherapy and Phytopharmacology

Scope

Phytomedicine is primarily a therapy-oriented Journal, which publishes innovative studies on efficacy, safety, quality and mechanisms of action of specified plant extracts, phytopharmaceuticals and their purified constituents. This includes clinical and preclinical studies of properly standardized herbal medicinal products, herbal preparations and isolated compounds, which have reproducible pharmacological activity.

The journal covers the following sections: Trends in Phytopharmacology: innovative technologies and emerging concepts - Reviews Clinical pharmacology and toxicology Pre-clinical pharmacology and toxicology Mechanisms of action of herbal medicines and their active constituents Neuropharmacology Endocrine pharmacology Cancer Inflammation Infectious diseases Cardiovascular diseases Ageing associated disorders Quality of Herbal preparations/botanicals: adulteration, standardization, analysis Legislation of Herbal preparations/botanicals Current issues in Phytomedicine research (various topics which are not covered in all other volumes).

BEFORE YOU BEGIN

Article requirements

Please note the following requirements for consideration of an article, upon submitting your manuscript:

1. Is your article within the scope of Phytomedicine?
   Your article must meet the scope of Phytomedicine (please see above). Articles that are not in the scope, will be rejected immediately! Articles on the isolation and structure elucidation of novel bioactive compounds or the development of new analytical methods do not fall into the scope of Phytomedicine. However, pharmacological and clinical studies of novel natural products, where new compounds or methods of analysis of active of pharmaceutical ingredients in herbal preparations and biological fluids and tissues are reported (e.g. in pharmacokinetic studies), are welcome. Dietary Supplements, "Botanicals" or "Functional Food" are not within the scope of Phytomedicine unless they are specified/standardized and pharmacologically investigated analogues to herbal drugs and if the evidence presented is comparable to therapeutic outcomes with a positive control. Studies on pure compounds are not accepted if their origin is not clearly related to the plant kingdom. Pharmacological studies of isolated compounds in various forms (salts, ethers, etc.), which do not exist in nature are out of scope of Phytomedicine. Screening results of a large number of plant extracts or plant constituents for pharmacological activities will not be considered unless they are focused on those plants or constituents which show superior activities in comparison with generally accepted positive (reference) compounds.

2. Does your article comply with the standard requirements of Phytomedicine?
   Your article must meet the criteria assuring reproducible quality and efficacy of herbal preparations. Plant name and herbal substance
   Latin binomial name and the author, local name and English name and plant part(s) used must by specified for all plants used in the study. It should be stated that the plant name has been checked with http://www.theplantlist.org. The authentication of fresh plants or dried herbal drugs, including those of formulas, must be carried out by means of macroscopic and/or microscopic, molecular biological, chemical, chromatographic and/or other suitable pharmacognostic methods. Voucher specimens of plant materials used for all studies must be deposited and identified with a voucher number, the date and location of collection. The plant material may derive from natural origin, from cultivated plants, or from an herbal drug market. In case of commercially procured material the source, batch number, and quality control data should be specified. All scientific names of the plants must be written in italics through the whole manuscript! Herbal medicinal products and herbal extracts
   Herbal medicinal products or herbal preparations must be declared in accordance to EMA guidelines. In particular, herbal extracts must be clearly and comprehensively described with respect to the plant part used, the drug extract ratio, type and concentration of extraction solvent, extraction
conditions etc. They must be sufficiently characterized (e.g. by HPLC fingerprints) and specified for the content of marker compounds to ensure a consistent quality and reproducible pharmacological activity. The choice of marker must be justified. The analytical methods have to be validated for selectivity, accuracy and precision and briefly described, providing the most important information necessary to obtain reproducible results. Traditional and commercial names of herbal preparations should be mentioned in the Introduction of the manuscript, but not in the title. Phytomedicine accepts only international standard terminology – binomial Latin names of the plants and their combinations.

**Herbal combinations**

Studies with herbal drug combinations (e.g. 2-5 plants) will be accepted only if each herbal drug undergo the same authentication and standardization process as described above, each single herbal extract is HPLC fingerprinted and relevant marker constituents are quantified before and after the extracts are mixed. A 3-D-HPLC-profile of the multiherbal drug combination must be provided. Authors must clearly demonstrate which analytical marker specifically indicates on the presence each of herbal ingredients in the combination. Additionally, we encourage the use other relevant and validated physiological, biological, or biochemical methods, which ensure reproducible pharmacological activity of multi-herbal drug combinations.

**Chemicals, phytochemicals and other purified compounds**

For purified compounds, please provide chemical names using relevant information from the NCBI PubChem which can be found on the website [http://www.ncbi.nlm.nih.gov/pccompound](http://www.ncbi.nlm.nih.gov/pccompound). In studies with purified compounds the evidences of their purity (13C NMR or HPLC peak purity test) are required.

**Gene nomenclature**

Authors should use approved nomenclature for gene symbols. Please consult the appropriate nomenclature data bases for correct gene names and symbols. "Entrez Gene" is a useful resource. Approved human gene symbols are provided by HUGO Gene Nomenclature committee (HGNC): [http://www.gene.ucl.ac.uk/nomenclature](http://www.gene.ucl.ac.uk/nomenclature) Approved Mouse symbols are provided by The Jackson Laboratory: [http://www.informatics.jax.org/mgihome/nomen](http://www.informatics.jax.org/mgihome/nomen)

Approved C. elegans symbols are provided by Caenorhabditis Genetics Center: [http://www.cbs.unm.edu/CGC/Nomenclature/no mengu id.htm](http://www.cbs.unm.edu/CGC/Nomenclature/nomengu id.htm) For approved S. cerevisiae and S. pombe symbols see [http://yeastgenome.org/help/yeastGeneNomenclature.shtml](http://yeastgenome.org/help/yeastGeneNomenclature.shtml) and [http://www.sanger.ac.uk/Projects/S_pombe/SP_Name_FAQ.shtml](http://www.sanger.ac.uk/Projects/S_pombe/SP_Name_FAQ.shtml), respectively. Statistical analysis hypothesis and methods should be described in detail. Actual P values should be used unless less than 0.001. Reporting of 95% confidence intervals is encouraged. The choice of appropriate parametric or nonparametric tools has to be justified. Refer to B.S. Everrett. Statistical Methods for Medical Investigations, Oxford University Press, New York, 1989.

3. **Is your article approaching new findings?**

Scientific novelty of your study must be clearly demonstrated. The articles limited with a repetition of well-known data or identification of only well-known ubiquitous compounds with little or no relation to activity are not acceptable.

4. **Is your article relevant to clinical medicine?**

Your article must be based on a thorough study, using proper controls and convincing evidences of therapeutic significance and observations.

Not acceptable are: In vitro studies with concentrations of active compounds, which could not be implemented in-vivo and that are not appropriate for further pharmaceutical development. In vitro studies without results on organs, tissues, fluids or cells. In vitro studies without positive control. In vivo single dose studies or studies with one set of experiments and few animals. Studies on antimicrobial activity with only single dose, very high concentration, measuring only inhibition zones without MIC values, without information on type of activity (or growth inhibition) or microorganisms investigation. Pharmacological studies of pure compounds, which are not supported by evidences on pharmacological activity of plant extract where it was identified.

5. **Does your article meet the requirements to clinical and pharmacological studies?**


Articles should be in line with Extensions of the Consolidated Standards...

Requirements for pharmacological studies (in vitro, ex vivo or in vivo): Investigations with animals must state in the Methods section that the research was conducted in accordance with internationally accepted principles for laboratory animal use and care (e.g. European community guidelines/ EEC Directive of 1986 or the US guidelines/ NIH publication). The route of drug administration, different of oral, must be justified. Appropriate and justified statistical methods must be used. Positive controls (reference standards must be included in study design). Many natural compounds are known for their polyvalent (pleiotropic) activities and are only of interest if one or two pharmacological activities are dominant and somehow superior in comparison with generally accepted reference standards/compounds. Their potential therapeutic application must be justified for specified indication. Antimicrobial evaluation of plants are of scientific value only if these plant extracts show superior biological activities in comparison with a synthetic or natural antimicrobial agent standard. It is preferred that in vitro activity (MIC) of an extract in not higher than 100 ìg/ml. For the correct determination of MIC values, standardized methodologies such as those of CLSI or EUCAST are preferred. All articles that are reporting gene expression profiling data (microarray experiments) should comply with the Minimum Information about Microarray Experiments (MIAME, http://www.mged.org/Workgroups/MIAME/miame.html). At least two microarrays should be provided for each experimental condition. Results of selected genes should be validated by a second method (e.g. RT-PCR) or protein data should be provided. In addition functional test (animal experiments/clinical data) undertaken simultaneously are desirable to allow an appraisal of the biological/clinical relevance of the data. Alternatively, results of in vivo experiments with comparable dosages can be discussed. The presentation of a sole data collection is not acceptable. Biologically relevant information should be presented. We recommend do not overuse specific names, notions and terms from various theories of traditional medical systems (e.g. TCM, Ayurveda, etc.). That makes articles difficult for perceptions and understanding. The essence of these theories should be translated into internationally accepted scientific theories, while traditional names and terms should be converted to English. Final interpretation of the results of the study must adhere to conventional scientific theories.

Ethics in publishing
Please see our information pages on Ethics in publishing and Ethical guidelines for journal publication.

Declaration of interest
All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential competing interests include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors must disclose any interests in two places: 1. A summary declaration of interest statement in the title page file (if double-blind) or the manuscript file (if single-blind). If there are no interests to declare then please state this: 'Declarations of interest: none'. This summary statement will be ultimately published if the article is accepted. 2. Detailed disclosures as part of a separate Declaration of Interest form, which forms part of the journal's official records. It is important for potential interests to be declared in both places and that the information matches. More information.

Submission declaration and verification
Submission of an article implies that the work described has not been published previously (except in the form of an abstract, a published lecture or academic thesis, see 'Multiple, redundant or concurrent publication' for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in
English or in any other language, including electronically without the written consent of the copyright-holder. To verify originality, your article may be checked by the originality detection service Crossref Similarity Check.

Preprints
Please note that preprints can be shared anywhere at any time, in line with Elsevier's sharing policy. Sharing your preprints e.g. on a preprint server will not count as prior publication (see 'Multiple, redundant or concurrent publication' for more information).

Use of inclusive language
Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Articles should make no assumptions about the beliefs or commitments of any reader, should contain nothing which might imply that one individual is superior to another on the grounds of race, sex, culture or any other characteristic, and should use inclusive language throughout. Authors should ensure that writing is free from bias, for instance by using 'he or she', 'his/her' instead of 'he' or 'his', and by making use of job titles that are free of stereotyping (e.g. 'chairperson' instead of 'chairman' and 'flight attendant' instead of 'stewardess').

Changes to authorship
Authors are expected to consider carefully the list and order of authors before submitting their manuscript and provide the definitive list of authors at the time of the original submission. Any addition, deletion or rearrangement of author names in the authorship list should be made only before the manuscript has been accepted and only if approved by the journal Editor. To request such a change, the Editor must receive the following from the corresponding author: (a) the reason for the change in author list and (b) written confirmation (e-mail, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed.

Only in exceptional circumstances will the Editor consider the addition, deletion or rearrangement of authors after the manuscript has been accepted. While the Editor considers the request, publication of the manuscript will be suspended. If the manuscript has already been published in an online issue, any requests approved by the Editor will result in a corrigendum.

Article transfer service
This journal is part of our Article Transfer Service. This means that if the Editor feels your article is more suitable in one of our other participating journals, then you may be asked to consider transferring the article to one of those. If you agree, your article will be transferred automatically on your behalf with no need to reformat. Please note that your article will be reviewed again by the new journal. More information.

Copyright
Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see more information on this). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases.

For gold open access articles: Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' (more information). Permitted third party reuse of gold open access articles is determined by the author's choice of user license.

Author rights
As an author you (or your employer or institution) have certain rights to reuse your work. More information.

Elsevier supports responsible sharing
Find out how you can share your research published in Elsevier journals.
Role of the funding source
You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated.

Funding body agreements and policies
Elsevier has established a number of agreements with funding bodies which allow authors to comply with their funder's open access policies. Some funding bodies will reimburse the author for the gold open access publication fee. Details of existing agreements are available online.

Open access
This journal offers authors a choice in publishing their research:

Subscription
- Articles are made available to subscribers as well as developing countries and patient groups through our universal access programs.
- No open access publication fee payable by authors.
- The Author is entitled to post the accepted manuscript in their institution's repository and make this public after an embargo period (known as green Open Access). The published journal article cannot be shared publicly, for example on ResearchGate or Academia.edu, to ensure the sustainability of peer-reviewed research in journal publications. The embargo period for this journal can be found below.

Gold open access
- Articles are freely available to both subscribers and the wider public with permitted reuse.
- A gold open access publication fee is payable by authors or on their behalf, e.g. by their research funder or institution.

Regardless of how you choose to publish your article, the journal will apply the same peer review criteria and acceptance standards.

For gold open access articles, permitted third party (re)use is defined by the following Creative Commons user licenses:

Creative Commons Attribution (CC BY)
Lets others distribute and copy the article, create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), include in a collective work (such as an anthology), text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, and do not modify the article in such a way as to damage the author's honor or reputation.

Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)
For non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

The gold open access publication fee for this journal is USD 2550, excluding taxes. Learn more about Elsevier's pricing policy: https://www.elsevier.com/openaccesspricing.

Green open access
Authors can share their research in a variety of different ways and Elsevier has a number of green open access options available. We recommend authors see our open access page for further information. Authors can also self-archive their manuscripts immediately and enable public access from their institution's repository after an embargo period. This is the version that has been accepted for publication and which typically includes author-incorporated changes suggested during submission, peer review and in editor-author communications. Embargo period: For subscription articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers before an article becomes freely available to the public. This is the embargo period and it begins from the date the article is formally published online in its final and fully citable form. Find out more.

This journal has an embargo period of 12 months.
Language (usage and editing services)
Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier's WebShop.

Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process. Editable files (e.g., Word, LaTeX) are required to typeset your article for final publication. All correspondence, including notification of the Editor's decision and requests for revision, is sent by e-mail. In case of production related queries please contact phymed@elsevier.com

Referees
Please submit the names and institutional e-mail addresses of several potential referees. For more details, visit our Support site. Note that the editor retains the sole right to decide whether or not the suggested reviewers are used.

PREPARATION

Types of manuscript
Original papers
Articles should not exceed 12-15 typewritten pages or up to 5,000 words, including references, tables and figures. Previously reported methods should be referenced only. The number of references should not exceed 30 (except for review articles or reports on microarray data).

Short communications
Short communications should be condensed to 4-8 typewritten pages or not more than 2,500 words including references and a maximum of two illustrations.

Review articles
Review articles will only be by invitation. Review articles can provide concise and critical updates on a subject of current interest. Herbal drug-monographs are only acceptable if they contain the newest pharmacological and toxicological issues and an outlook on future directions.

Prof. Hildebert Wagner Award
The "Prof. Hildebert Wagner Award" was created to honor the outstanding efforts of Prof. Wagner for the journal Phytomedicine. This award will be granted to a graduate student or young post-doctoral researcher who is the first author of a paper reviewed by the Editors of Phytomedicine to be the best one in the Journal during the previous calendar year. The prize will be sponsored by Elsevier with EUR 500 for the awardee and a certificate for every Co-Author. Additionally an official notice will be published on the journal homepage of Phytomedicine (https://www.elsevier.com/locate/phymed), on which the article will be available free of charge for one year. The reviewing editors for the first contribution to be awarded in Phytomedicine will be Prof. Hildebert Wagner himself, Prof. Alexander Panossian, and Prof. Susana Zacchino. To qualify, nominees must be younger than 35 years and an outstanding contribution to the field must be provided. Nominations can be made by first authors (resp. corresponding authors).

Nominations for the first "Prof. Hildebert Wagner Award" in 2016 can be done until June 30, 2016. The announcement of the winner will be by end of October 2016. Please choose Award-Article from the drop-down menu below, if you want your article to be considered for the Award.

Peer review
This journal operates a single blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of one independent expert reviewer to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. More information on types of peer review.

Essential title page information
• Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
• Author names and affiliations. Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. You can add your name between parentheses in your own script behind the English transliteration. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-
case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

- **Corresponding author.** Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. This responsibility includes answering any future queries about Methodology and Materials. **Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.**

- **Present/permanent address.** If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Example:

**Anti-stress effects of 20(S)-protopanaxadiol and 20(S)-protopanaxatriol in immobilized mice**

Hyun A Oh\(^a\), Dae-Eung Kim\(^b\), Hyuck Jai Choi\(^c\), Nam Jae Kim\(^c\), and Dong-Hyun Kim\(^c\)*

\(^a\) Department of Life and Nanopharmaceutical Sciences, College of Pharmacy, Kyung Hee University, 26, Kyungheedae-ro, Dongdaemun-ku, Seoul 130-701, Republic of Korea

\(^b\) Sempio Foods Company, 183, Osongsaengmyung-4ro, Cheongwongun, Chungcheongbukdo 363-954, Republic of Korea

\(^c\) East-West Medical Research Institute, Kyung Hee University Medical Center, 23, Kyungheedae-ro, Dongdaemun-ku, Seoul 130-872, Republic of Korea

*Corresponding author

Dong-Hyun Kim, Department of Life and Nanopharmaceutical Sciences, College of Pharmacy, Kyung Hee University, 26, Kyungheedae-ro, Dongdaemun-ku, Seoul 130-701, Republic of Korea

Tel.: +82 2 961 0374; fax: +82 2 957 5030.

E-mail address: dhkim@khu.ac.kr (D.H. Kim).

**The phone, fax and email address of the corresponding author should be placed on the title page.

**Abstract**

A concise and factual abstract is required. Abstracts should summarize the contents of the article in 350 words or less. The abstract should be structured in the following format:

Background: In one or two sentences, summarize the scientific body of knowledge surrounding your study and how this led to your investigation.

Hypothesis/Purpose: State the theory(ies) that you are attempting to prove or disprove by your study or the purpose if no hypothesis exists.

Study Design: Identify the overall design of your study.

Methods: Succinctly summarize the overall methods you used in your investigation. For clinical studies include the study population, type of intervention, method of data collection, and length of the study.

Results: Report the most important results of your study. Only include positive results that are statistically significant, or important negative results that are supported by adequate power. For clinical studies report actual data, not just P values.

Conclusion: State the answer to your original question or hypothesis. Summarize the most important conclusions that can be directly drawn from your study.

**Graphical abstract**

A graphical abstract is mandatory for this journal. It should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership online. Authors must provide images that clearly represent the work described in the article. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site.

Authors can make use of Elsevier’s Illustration Services to ensure the best presentation of their images also in accordance with all technical requirements.
Keywords
Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

Abbreviations
A section of abbreviations should precede the manuscript. Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article. See "Uniform requirements for manuscripts submitted to biomedical journals" (1991) New England Journal of Medicine 324:424–428.

Pagination and line numbers
Only manuscripts with page and line numbers will be reviewed.

Introduction
Provide an adequate background, avoiding a detailed literature survey or a summary of the results. State the objectives of the work. No results of the study should be described in this section.

Material and methods
Provide sufficient detail to allow the work to be reproduced. Methods already published should be indicated by a reference: only relevant modifications should be described.

This section should contain some subsections common for almost all studies: Plant names and parts used (requirements see above) Study medication, herbal extracts (requirements see above) Chemical compounds (requirements see above) Statistical analysis (requirements see above) Assays (requirements see above) Animal studies (requirements see above) Study design (requirements see above)

Results
Results should be clear and concise.

Discussion
This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusions
The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

Acknowledgements
Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

Formatting of funding sources
List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, please include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.
Units
Follow internationally accepted rules and conventions: use the international system of units (SI). If other units are mentioned, please give their equivalent in SI.

Math formulae
Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

Footnotes
Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors can build footnotes into the text, and this feature may be used. Otherwise, please indicate the position of footnotes in the text and list the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

Color artwork
Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF) or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites). Further information on the preparation of electronic artwork.

References
Citation in text
Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Reference links
Increased discoverability of research and high quality peer review are ensured by online links to the sources cited. In order to allow us to create links to abstracting and indexing services, such as Scopus, CrossRef and PubMed, please ensure that data provided in the references are correct. Please note that incorrect surnames, journal/book titles, publication year and pagination may prevent link creation. When copying references, please be careful as they may already contain errors. Use of the DOI is highly encouraged.

A DOI is guaranteed never to change, so you can use it as a permanent link to any electronic article. An example of a citation using DOI for an article not yet in an issue is: VanDecar J.C., Russo R.M., James D.E., Ambeh W.B., Franke M. (2003). Aseismic continuation of the Lesser Antilles slab beneath northeastern Venezuela. Journal of Geophysical Research, https://doi.org/10.1029/2001JB000884. Please note the format of such citations should be in the same style as all other references in the paper.

Web references
As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. This identifier will not appear in your published article.

Example:
References in a special issue

Please ensure that the words 'this issue' are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.

Most Elsevier journals have a standard template available in key reference management packages. This covers packages using the Citation Style Language, such as EndNote (http://www.endnote.com/support/enstyles.asp) and also others like Mendeley (http://www.mendeley.com/features/reference-manager) and Reference Manager (http://refman.com/support/rmstyles.asp). Using plug-ins to word processing packages which are available from the above sites, authors only need to select the appropriate journal template when preparing their article and the list of references and citations to these will be formatted according to the journal style as described in this Guide. The process of including templates in these packages is constantly ongoing. If the journal you are looking for does not have a template available yet, please see the list of sample references and citations provided in this Guide to help you format these according to the journal style.

If you manage your research with Mendeley Desktop, you can easily install the reference style for this journal by clicking the link below: http://open.mendeley.com/use-citation-style/phytomedicine
When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice. For more information about the Citation Style Language, visit http://citationstyles.org.

Reference style

Text: All citations in the text should refer to:
1. Single author: the author's name (without initials, unless there is ambiguity) and the year of publication;
2. Two authors: both authors' names and the year of publication;
3. Three or more authors: first author's name followed by 'et al.' and the year of publication.

Citations may be made directly (or parenthetically). Groups of references should be listed first alphabetically, then chronologically.
Examples: 'as demonstrated (Allan, 2000a, 2000b, 1999; Allan and Jones, 1999). Kramer et al. (2010) have recently shown ....'

List: References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters 'a', 'b', 'c', etc., placed after the year of publication.
Examples:

Reference to a journal publication:

Reference to conference proceedings:


Reference to a book:

Reference to a chapter in an edited book:

Journal abbreviations source
Journal names should be abbreviated according to the List of Title Word Abbreviations.
Appendices
If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

Video
Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the file in one of our recommended file formats with a preferred maximum size of 150 MB per file, 1 GB in total. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect. Please supply 'stills' with your files: you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our video instruction pages. Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

Data visualization
Include interactive data visualizations in your publication and let your readers interact and engage more closely with your research. Follow the instructions here to find out about available data visualization options and how to include them with your article.

Supplementary material
Supplementary material such as applications, images and sound clips, can be published with your article to enhance it. Submitted supplementary items are published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file. Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.

Research data
This journal encourages and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings. To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Below are a number of ways in which you can associate data with your article or make a statement about the availability of your data when submitting your manuscript. If you are sharing data in one of these ways, you are encouraged to cite the data in your manuscript and reference list. Please refer to the "References" section for more information about data citation. For more information on depositing, sharing and using research data and other relevant research materials, visit the research data page.

Data linking
If you have made your research data available in a data repository, you can link your article directly to the dataset. Elsevier collaborates with a number of repositories to link articles on ScienceDirect with relevant repositories, giving readers access to underlying data that gives them a better understanding of the research described.

There are different ways to link your datasets to your article. When available, you can directly link your dataset to your article by providing the relevant information in the submission system. For more information, visit the database linking page.

For supported data repositories a repository banner will automatically appear next to your published article on ScienceDirect.
In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

**Data in Brief**

You have the option of converting any or all parts of your supplementary or additional raw data into one or multiple data articles, a new kind of article that houses and describes your data. Data articles ensure that your data is actively reviewed, curated, formatted, indexed, given a DOI and publicly available to all upon publication. You are encouraged to submit your article for Data in Brief as an additional item directly alongside the revised version of your manuscript. If your research article is accepted, your data article will automatically be transferred over to Data in Brief where it will be editorially reviewed and published in the open access data journal, Data in Brief. Please note an open access fee of 600 USD is payable for publication in Data in Brief. Full details can be found on the Data in Brief website. Please use this template to write your Data in Brief.

Ensure that the following items are present:
- **One author** has been designated as the corresponding author with contact details: Full postal address E-mail address Tel / fax number

2. All necessary files have been uploaded separately Author Agreement Cover letter Manuscript Tables Figures Graphical Abstract (mandatory) Supplementary material (if needed)

3. Correct order within the manuscript: Title Page (Heading, Author names (the superscripts behind the names which indicates the Institutes/affiliation of the authors have to be a,b,c,.... and * for the corresponding author in addition), Institutes/affiliation, Corresponding Author with full address, Word count) Abstract: has to be structured into Background, Hypothesis/Purpose, Study Design, Methods, Results, Conclusion Keywords not more than 6 Abbreviations Introduction Materials and methods Results and discussion Conclusion Acknowledgments Conflict of interest (mandatory) References Table legends Figure legends Page and line numbers throughout the manuscript

4. References about 30 (have to be numbered) References are in the correct format for this journal References in alphabetical order All references mentioned in the Reference list are cited in the text, and vice versa Citation according to our journal style

5. Choose the correct section for your article

6. Further considerations Manuscript has been 'spell-checked' and 'grammar-checked' Permission has been obtained for use of copyrighted material from other sources (including the Internet) Printed version of figures (if applicable) in color or black-and-white Indicate clearly whether or not color or black-and-white in print is required. For reproduction in black-and-white, please supply black-and-white versions of the figures for printing purposes. For any further information please visit our Support Center.

**AFTER ACCEPTANCE**

**Online Proof Correction**

**Availability of accepted article**

This journal makes articles available online as soon as possible after acceptance. This concerns the accepted article (both in HTML and PDF format), which has not yet been copyedited, typeset or proofread. A Digital Object Identifier (DOI) is allocated, thereby making it fully citable and searchable by title, author name(s) and the full text. The article's PDF also carries a disclaimer stating that it is an unedited article. Subsequent production stages will simply replace this version.

**Online proof correction**
Corresponding authors will receive an e-mail with a link to our online proofing system, allowing annotation and correction of proofs online. The environment is similar to MS Word: in addition to editing text, you can also comment on figures/tables and answer questions from the Copy Editor. Web-based proofing provides a faster and less error-prone process by allowing you to directly type your corrections, eliminating the potential introduction of errors.

If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions for proofing will be given in the e-mail we send to authors, including alternative methods to the online version and PDF.

We will do everything possible to get your article published quickly and accurately. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. It is important to ensure that all corrections are sent back to us in one communication. Please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

**Offprints**
The corresponding author will, at no cost, receive a customized Share Link providing 50 days free access to the final published version of the article on ScienceDirect. The Share Link can be used for sharing the article via any communication channel, including email and social media. For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. Both corresponding and co-authors may order offprints at any time via Elsevier's Webshop. Corresponding authors who have published their article gold open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.

**AUTHOR INQUIRIES**
Visit the Elsevier Support Center to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch.

You can also check the status of your submitted article or find out when your accepted article will be published.

© Copyright 2018 Elsevier | https://www.elsevier.com