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Editorial

Perspectives in Food & Medicine Homology

Bin Cong*

Food & Medicine Homology, **2024**, *1*, 9420018
https://doi.org/10.26599/FMH.2024.9420018

Professor Bin Cong, an Academician of Chinese Academy of Engineering, proposed the definition of "food and medicine homology" i.e. a substance which integrates pharmacological and nutritional functions into one entity, among which the medicinal components should have no detrimental effects on the body and also can be consumed for a long time.

Review Article

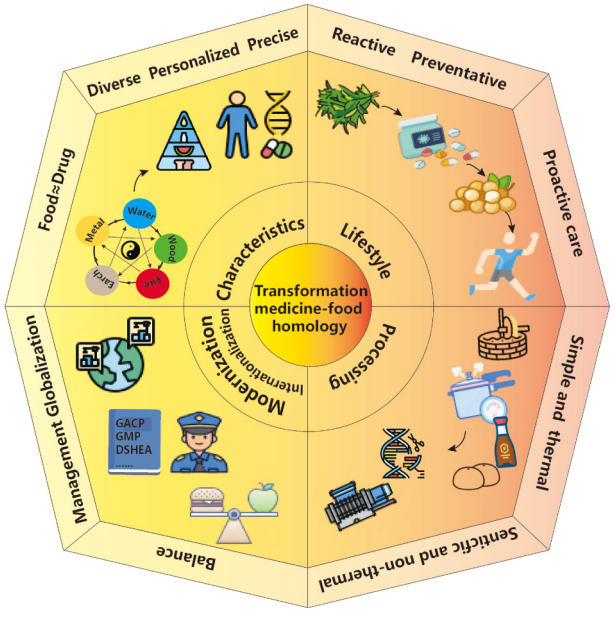
Transformation from traditional medicine-food homology to modern food-medicine homology

Dong-Xiao Sun-Waterhouse, Xiao-Yu Chen, Zhen-Hua Liu, Geoffrey I.N. Waterhouse, and Wen-Yi Kang*

Food & Medicine Homology, **2024**, *1*, 9420014
https://doi.org/10.26599/FMH.2024.9420014

Highlights

(1) According to traditional medicine-food homology, there is no strict boundary between food and medicine.
(2) Modern food-medicine homology is more diverse, precise and personalized.
(3) A shift in healthcare focus (from reactive care to preventive care and proactive care).
(4) Technological innovations and scientific advances enable large-scale medicine-food homologous resource discovery and efficacy validation, and make the therapeutic process more enjoyable.
(5) Modernization and internationalization of the "medicine-food homology" concept and practice are imperative and feasible.



Four major aspects (concept, lifestyle, food processing, modernization and internationalization) of transformation from traditional medicine-food homology to modern food-medicine homology.

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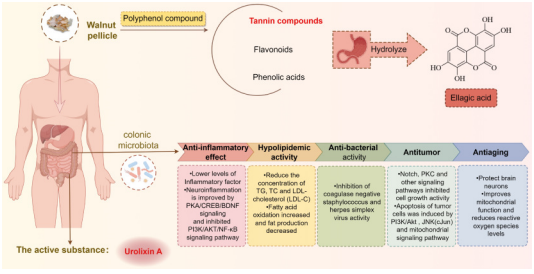
The chemical composition of the walnut pellicle and its benefits to health

Chen-Rui Zhao, Qin Chen, Xuan Ma, Tian-Yu Yang, Wen-Jie Yan, Rui-Fen Rong, and Feng Wang*

Food & Medicine Homology, **2024**, *1*, 9420007
https://doi.org/10.26599/FMH.2024.9420007

Highlights

(1) The main biological activities of the walnut pellicle.
(2) The metabolic way of ellagitannin, the main polyphenolic compound of the walnut pellicle, *in vivo* was reviewed.
(3) The five main biological activities of the polyphenolic compounds in the walnut pellicle.
(4) The interaction between the polyphenolic compounds in the walnut pellicle and the walnut proteins.



The walnut pellicle is rich in abundant polyphenolic compounds. When they react with salivary proteins, a bitter taste is formed in the oral cavity. As a result, the walnut pellicle is often discarded as waste, causing a waste of resources. This article summarizes the composition of polyphenolic compounds in the walnut pellicle and the related biological activities, providing a theoretical foundation for the development and utilization of the walnut pellicle.

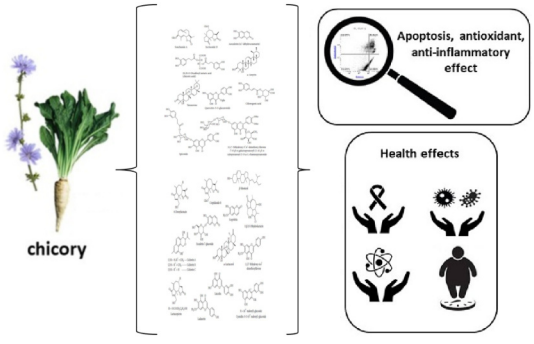
Chemical compositions and health-promoting effects of *Cichorium intybus* L. (chicory): a narrative review

Raghda A. El-Sayed, Ali B. Jebur, Mohamed M. Abdel-Daim, and Fatma M. El-Demerdash*

Food & Medicine Homology, **2024**, *1*, 9420012
https://doi.org/10.26599/FMH.2024.9420012

Highlights

(1) Nutritional composition of chicory plant different parts.
(2) Summarized bioactivity related to appropriate compounds from chicory.
(3) Safety and health claims for chicory extract.



Chicory (*C. intybus* L.) is a popular food plant in many parts of the world, and its unique phytochemical content has made it a staple in traditional medicine. It is a viable source of biologically relevant elements (potassium (K), iron (Fe), calcium (Ca)), vitamins (vitamin A, B1, B2, C), and bioactive compounds (inulin, sesquiterpene lactones, coumarin derivatives, cichoric acid, phenolic acids), with several biological effects including hepatoprotective, cardiovascular, antioxidant, anticancer, reproductive, anti-diabetic, anti-inflammatory, analgesic, antimicrobial, and other pharmacological effects. This review was created to highlight the chemical ingredients and medical significance of *C. intybus* based on recent literature.

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Research Article

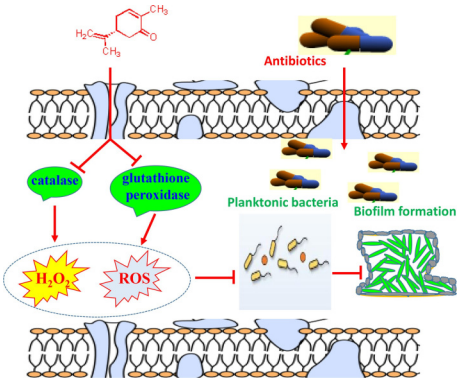
Anti-virulence potential of carvone against *Serratia marcescens*

Jin-Wei Zhou*, Kun-Yuan Yin, Wen-Qi Luo, Ao Chen, Zhe-Wen Liang, Peng-Cheng Ji, Yu-Jie Wang, and Xin-Nan Wang

Food & Medicine Homology, **2024**, *1*, 9420001
https://doi.org/10.26599/FMH.2024.9420001

Highlights

(1) Carvone inhibited the production of virulence factors secreted by S. marcescens.
(2) Carvone enhanced the susceptibility of bacterial/biofilm cells to antibiotics.
(3) Carvone inhibited the expressions of genes involved in virulence, antioxidant enzymes and biofilms.
(4) Carvone enhanced oxidative stress and increased permeability of cell membrane.



Carvone treatment repressed the activities of antioxidant enzymes and resulted in the enhancement of oxidative stress. The enhanced oxidative stress improved the permeability membrane and eventually increased the susceptibility of biofilms to antibiotics.

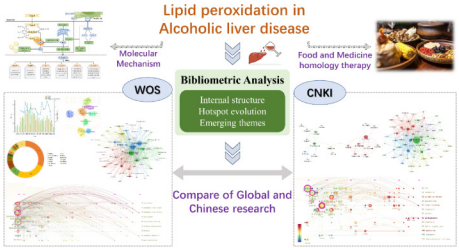
A bibliometric analysis of lipid peroxidation in alcoholic liver disease from 2001 to 2024

Jian-Ling Yao, Xian-Xian Li, Ming-Xia Li, Ying-Yu He, Meng-Yu Sun, Qing-Yue Deng, Wei Liu, Ruo-Lan Song, Jia-Mu Ma, Yuan Zheng, Xue-Yang Ren, Ying Dong, Xiao-Yun Liu, Yan Zhang, and Gai-Mei She*

Food & Medicine Homology, **2024**, *1*, 9420009
https://doi.org/10.26599/FMH.2024.9420009

Highlights

(1) Research progress of LPO in ALD is comprehensively presented through bibliometric.
(2) TCM, especially homology of medicine and food play an important role in treating ALD.
(3) Targeted intestinal flora therapy of functional foods in the treatment of ALD.



Alcoholic liver disease (ALD) is a major burden of liver disease worldwide, and lipid peroxidation (LPO) is one of the most important pathogenesis. Based on the Web of Science Core Collection (WOSCC) and China National Knowledge Infrastructure (CNKI) database, we described the literature publication, quality, cooperation network, citation, keyword analysis, etc. Current research mainly includes key products and pathway targets in diseases, as well as drug exploration, including traditional chemical drugs and natural drugs. Traditional Chinese medicine, especially traditional Chinese medicine with homologous origins of medicine and food, plays an important role in the prevention and treatment of ALD. For example, sanqi has attracted much attention from researchers. Interestingly, comparative international and Chinese studies show opposing research histories. International studies start with the pathogenesis of ALD and then select a single compound or extract for therapeutic or preventive studies based on its pathogenesis. However, domestic scholars first pay attention to the related clinical efficacy. The beneficial effects and targeted therapy of traditional Chinese medicine with the homology of medicine and food in the treatment of ALD should be the trend of future research.

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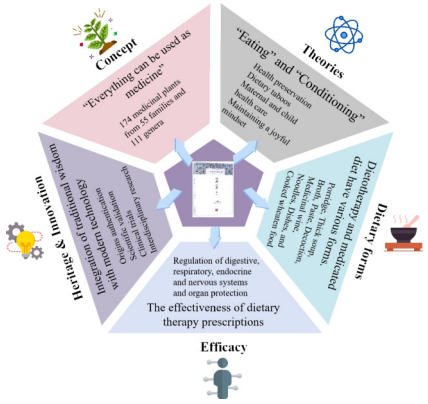
Yinshan Zhengyao: exploring the power of food and inheriting healthy thoughts

Hui Niu, Aruhan, Seesregdorj Surenjidiin, Li-Ming Zhang, Chun-Hong Zhang*, and Min-Hui Li*

Food & Medicine Homology, **2024**, *1*, 9420006
https://doi.org/10.26599/FMH.2024.9420006

Highlights

(1) By analyzing the medicinal plants and therapeutic dietary recipes in the classic ancient book *Yinshan Zhengyao*, inspiration and basis are provided for the development and utilization of medicinal and food homology products.
(2) *Yinshan Zhengyao* encompasses a rich array of medicinal plants and diverse therapeutic dietary recipes, facilitating the diversified development of medicinal and food homology products.
(3) Advocating for the integration of empirical formulas from *Yinshan Zhengyao* with modern scientific methods to propel the modernization of medicinal and food homology products.



Yinshan Zhengyao covers 174 species of medicinal plants belonging to 55 families and 111 genera. The book emphasizes the importance of health preservation, dietary precautions, and maternal and child healthcare, aiming at preventing diseases before they occur. The book includes 237 recipes. The effectiveness of these recipes can be broadly categorized into regulating digestive, respiratory, endocrine, and nervous system functions, as well as providing protective and regulatory effects on various organs. These recipes are presented in various medicinal food forms such as porridge, thick soup, broth, paste, decoction, medicinal wine, noodles, dishes, and cooked wheaten food. However, most of these formulas are summaries of past experiences and require further validation of their material basis and therapeutic mechanisms through modern scientific methods.

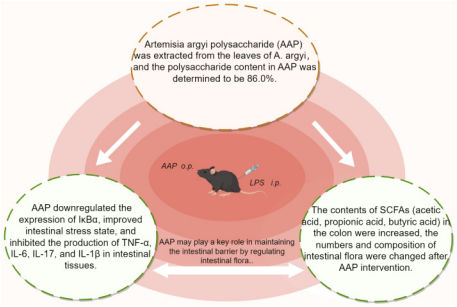
Artemisia argyi polysaccharide alleviates intestinal inflammation and intestinal flora dysbiosis in lipopolysaccharide-treated mice

Er-Juan Ning, Chao-Wei Sun, Xue-Fang Wang, Ling Chen, Fei-Fei Li, Li-Xian Zhang, Lu-Peng Wang, Yan-Ni Ma, Jie Zhu, Xiao Li*, and Wei Wang*

Food & Medicine Homology, **2024**, *1*, 9420008
https://doi.org/10.26599/FMH.2024.9420008

Highlights

(1) *Artemisia argyi* polysaccharide (AAP) was extracted from the leaves of *A. argyi*, and the polysaccharide content in AAP was determined to be 86.0%.
(2) AAP downregulated the expression of IκBα, improved intestinal stress state, and inhibited the production of TNF-α, IL-6, IL-17, and IL-1β in intestinal tissues.
(3) The contents of SCFAs (acetic acid, propionic acid, butyric acid) in the colon were increased, the numbers and composition of intestinal flora were changed after AAP intervention.
(4) AAP alleviated intestinal inflammation and intestinal flora dysbiosis in LPS-treated mice, it may play a key role in maintaining the intestinal barrier by regulating intestinal flora.



Artemisia argyi polysaccharide (AAP) is an important active component extracted from the leaves of *Artemisia argyi* (A. argyi). The mice was injected intraperitoneally with LPS to induce intestinal inflammation and barrier injury, and mice in experimental group were gavaged with AAP for the entire experimental period.The study showed that AAP can downregulate the expression of IκBα, improve intestinal stress state, and inhibite the production of TNF-α, IL-6, IL-17, and IL-1β in intestinal tissues.The contents of SCFAs (acetic acid, propionic acid, butyric acid) in the colon were increased, the numbers and composition of intestinal flora were changed after AAP intervention.Results showed that AAP alleviated intestinal inflammation and intestinal flora dysbiosis in LPS-treated mice, it may play a key role in maintaining the intestinal barrier by regulating intestinal flora.

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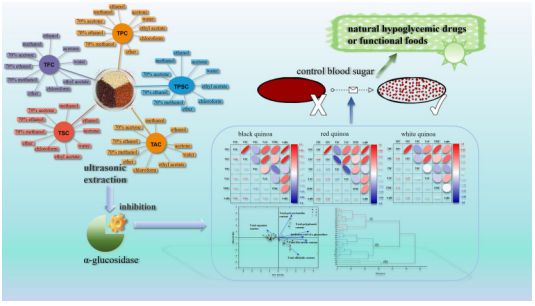
Screening and extraction process optimization for potential *α*-glucosidase inhibitors from quinoa seeds

Rui-Li Zheng, Jie Wang, Si-Yi Liu, Zhi-Peng Sun, Li-Yan Zhao*, and Gui-Tang Chen*

Food & Medicine Homology, **2024**, *1*, 9420004
https://doi.org/10.26599/FMH.2024.9420004

Highlights

(1) The aqueous extract of quinoa had a higher phenolic content.
(2) Polyphenols exhibited the strongest correlation with *α*-glucosidase inhibitory effect.
(3) The maximum extraction yield of black quinoa polyphenols was 5.168 ± 0.066 mg/GAE·g^{-1}.
(4) Black quinoa polyphenols inhibited the activities of *α*-glucosidase and *α*-amylase.



Quinoa, a natural functional food, possesses both essential nutrients and bioactive components that prevent hyperglycemia by improving insulin resistance and inhibiting *α*-glucosidase. Current research mainly focuses on quinoa's hypoglycemic effect, overlooking specific active ingredients. This study extracted active substances from various quinoa varieties using ten solvents and identified black quinoa crude polyphenols (BQCP) as the primary hypoglycemic component. After optimization, purification, and enrichment, black quinoa polyphenols (BQP) were obtained. Enzyme kinetics experiments revealed BQP's hypoglycemic potential, suggesting its potential as a natural hypoglycemic drug or functional food source.

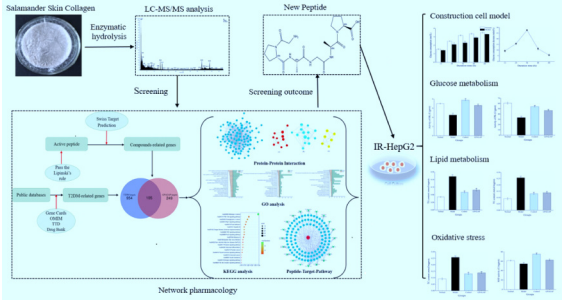
A novel antidiabetic peptide GPAGAP from *Andrias davidianus* collagen hydrolysates: screening, action mechanism prediction and improving insulin resistance in HepG2 cells

Zi-Han Dong, Ruo-Yao Pan, Guo-Yan Ren*, Ming Zhou, Bin Zhang, Jin-Ling Fan, and Zhi-Jun Qiu

Food & Medicine Homology, **2024**, *1*, 9420010
https://doi.org/10.26599/FMH.2024.9420010

Highlights

(1) A novel antidiabetic peptide (GPAGAP) was screened by Network pharmacology.
(2) GPAGAP is predicted to ameliorate type 2 diabetes through multiple pathways and multiple targets.
(3) GPAGAP can improve the glucose metabolism disorder of IR-HepG2 cells.
(4) GPAGAP can improve the lipid metabolism disorder of IR-HepG2 cells.
(5) GPAGAP can improve the oxidative stress level of IR-HepG2 cells.



A novel peptide GPAGAP was screened from skin collagen hydrolysates of *Andrias davidianus* by network pharmacology, and it could through multi-target and multi-pathway to improve the glucose metabolism, lipid metabolism and oxidative stress response of IR-HepG2 cells. GPAGAP has the potential effect of improving T2DM.

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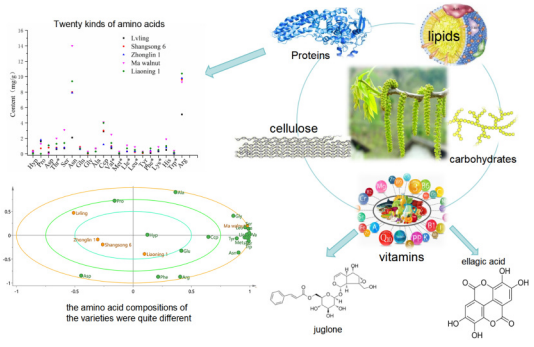
Analysis and comparison of staminate flowers components in five Chinese walnut varieties

Zhi-Xiang Cao, Yu-Xin Li, Ai-Jin Ma, and Yi-Ling Tian*

Food & Medicine Homology, **2024**, *1*, 9420005
https://doi.org/10.26599/FMH.2024.9420005

Highlights

(1) Walnut staminate flowers are rich in cellulose and protein.
(2) Walnut staminate flowers are rich in minerals and has a potassium content as high as 26.55-37.22 mg/g.
(3) In the secondary metabolites of walnut staminate flowers are rich in flavonoids and polyphenols.
(4) PCA shows that amino acids can distinguish the different varieties of walnut staminate flowers.



In this study, five kinds of walnut staminate flowers, from China were compared in terms of conventional nutrients and secondary metabolites.The walnut staminate flower is a byproduct resource worthy of comprehensive development and can be used as an effective source of protein, cellulose, minerals and natural active ingredients.

Twenty kinds of amino acids could be detected in the walnut staminate flowers. Except the Lvling, all tested varieties contained eight essential amino acids. A small difference in the types of amino acids was present amongst the varieties, and the content had large differences. The contents of Asn, Val, Ccp and Arg were relatively high.

The polyphenols and the flavonoids especially the ellagic acid and the juglone in walnut staminate flowers should be deeply studied. In addition,walnut staminate flowers can be extracted and used in accordance with the varietal differences.

Aims and Scope

Aims

Food & Medicine Homology is a peer-reviewed, cross-disciplinary, open access journal dedicated to cutting-edge research integrating findings in food science and medicine. The journal publishes papers dealing with plants, animals and microorganisms, reporting the food resources and base materials with nutritional and medicinal values and health-promoting effects that are discovered and confirmed using modern scientific theories and technologies, and providing insights into their health-promoting functions, underlying molecular mechanisms of action and regulatory modes.

Food & Medicine Homology focuses on the scientific evidence and practical application guidance of the composition-efficacy-mechanism relationship in food resources with medicinal and therapeutic values, and provides theoretical basis for the development of products with nutritional, health-promoting, therapeutical and medicinal functions. The content reported in the articles must be scientifically innovative, impactful and excellent.

Scope

Research on functional components: including isolation, structural characterization and activity evaluation of polysaccharides, proteins and secondary metabolites.

Efficacy studies: *In vivo* and *in vitro* efficacy studies of extracts, effective fractions/parts and secondary metabolites.

Health effects: *In vitro* and *in vivo* research on the mechanisms of action of functional ingredients, including clinical studies such as human oral administration trials.

Interdisciplinary research: including but not limited to:

- Screening and discovering new food resources based on traditional Chinese medicine framework and folk medicine practices, include toxicity evaluation;
- Research on the applications of new functions of clinical formulas/preparations based on the homology of medicine and food exploration of new food raw materials and ingredients;
- Food nutrition and safety evaluation systems for the digestive tract;
- New analytical technologies for the identification and activity screening of functional components. Bioavailability, targeted delivery, and microecological regulation of functional components.

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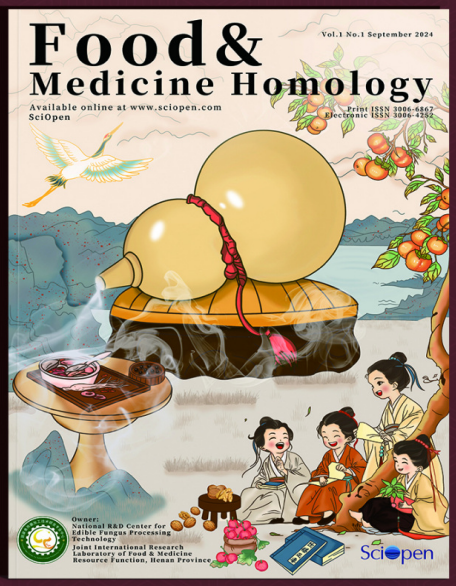

- 聚焦具有药用和康养价值的食物资源中成分-功效-机理之间关系的科学证据，为开发兼具营养、保健、康养、医疗功能的健康产品提供理论基础
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