

# Food & Function

rsc.li/food-function

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

## IN THIS ISSUE

ISSN 2042-650X CODEN FFOUAI 15(2) 429–1054 (2024)



**Cover**  
See Isabel Mafra *et al.*,  
pp. 493–502.

Image reproduced by  
permission of  
Carla SS Teixeira,  
Caterina Villa, Rita Biltes,  
Joana Costa and Isabel Mafra  
from *Food Funct.*, 2024, **15**,  
493.



**Inside cover**  
See Lingjun Ma, Junfu Ji  
*et al.*, pp. 503–515.

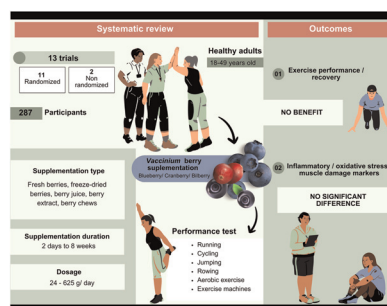
Image reproduced by  
permission of Lingjun Ma and  
Junfu Ji from *Food Funct.*,  
2024, **15**, 503.

## REVIEWS

444

### Effects of *Vaccinium* berries (blueberries, cranberries and bilberries) on oxidative stress, inflammation, exercise performance, and recovery – a systematic review

Arnold Prieto Martínez, Michelle Coutiño Diaz, Lizette Anaya Romero, Ali Ali Redha,\* Reza Zare, Sthefano Ventura Hernandez, Konstantinos Prokopidis and Tom Clifford



460

### Technological and health properties and main challenges in the production of vegetable beverages and dairy analogs

Irene Andressa,\* Glauce Kelly Silva do Nascimento, Tatiane Monteiro dos Santos, Rosane da Silva Rodrigues, Daniela de Oliveira Teotônio, Luz María Paucar-Menacho, Vivian Machado Benassi and Marcio Schmiele



# Fuelling your energy research



## Energy & Environmental Science

Agenda-setting research in energy science and technology

### Chair of the Editorial Board

Jenny Nelson, Imperial College London, UK

Impact factor 2021: 39.714, median time to first decision (peer reviewed articles only): 46 days\*.

[rsc.li/ees](https://rsc.li/ees)



## EES Catalysis

Exceptional research on energy and environmental catalysis

### Editor-in-Chief

Shizhang Qiao, University of Adelaide, Australia

Median time to first decision (peer reviewed articles only): 24 days\*.

[rsc.li/ees-catalysis](https://rsc.li/ees-catalysis)



## Sustainable Energy & Fuels

Driving the development of sustainable energy technologies through cutting edge research

### Editor-in-Chief

Garry Rumbles, National Renewable Energy Laboratory and University of Colorado Boulder, USA

Impact factor 2021: 6.813, median time to first decision (peer reviewed articles only): 28 days\*.

[rsc.li/sustainable-energy](https://rsc.li/sustainable-energy)



## Energy Advances

Embracing research at the nexus of energy science and sustainability

### Editor-in-Chief

Volker Presser, Leibniz Institute for New Materials, Germany

Median time to first decision (peer reviewed articles only): 32 days\*.

[rsc.li/energy-advances](https://rsc.li/energy-advances)

Submit your work today

[rsc.li/energy](https://rsc.li/energy)

\*Visit [rsc.li/metrics-explainer](https://rsc.li/metrics-explainer) for more information

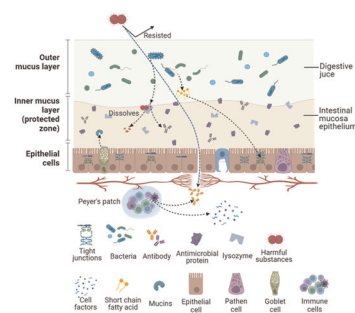
Registered charity number: 207890

## REVIEWS

481

### A critical review on intestinal mucosal barrier protection effects of dietary polysaccharides

Wei qi Yan, Jinhai Luo, Zhiling Yu and Baojun Xu\*

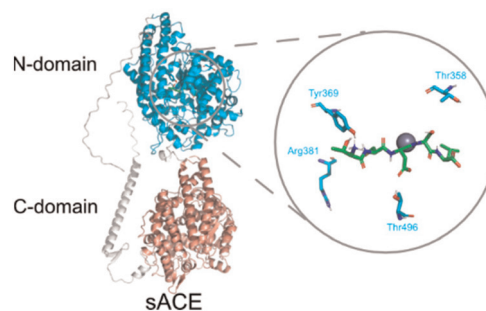


## PAPERS

493

### Exploiting *Locusta migratoria* as a source of bioactive peptides with anti-fibrosis properties using an *in silico* approach

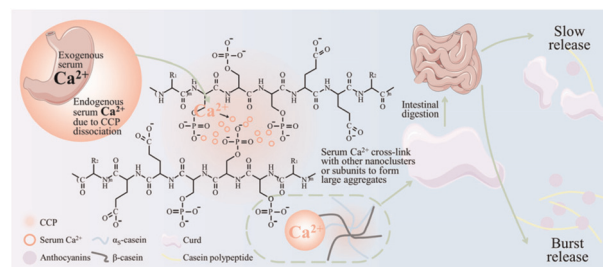
Carla S. S. Teixeira, Rita Biltes, Caterina Villa, Sérgio F. Sousa, Joana Costa, Isabel M. P. L. V. O. Ferreira and Isabel Mafra\*



503

### The aggregation of casein micelles induced by $\text{Ca}^{2+}$ during *in vitro* digestion: effects on the release of loaded anthocyanins

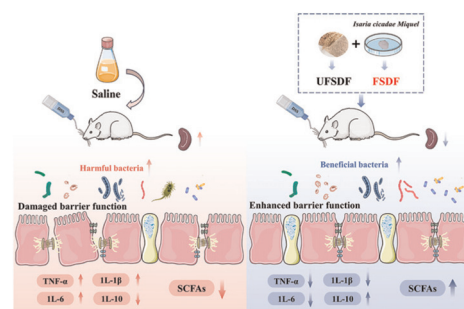
Jinbo Ren, Minjie Liao, Kaixin Li, Fang Chen, Xiaosong Hu, Lingjun Ma\* and Junfu Ji\*



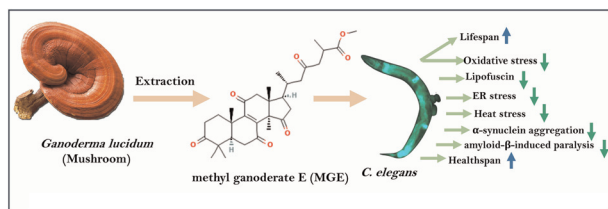
516

### Soluble dietary fibers from solid-state fermentation of wheat bran by the fungus *Cordyceps cicadae* and their effects on colitis mice

Hua Wang, Menglin Li, Furong Jiao, Wenxiu Ge, Rui Liu,\* Zijian Zhi,\* Tao Wu, Wenjie Sui and Min Zhang



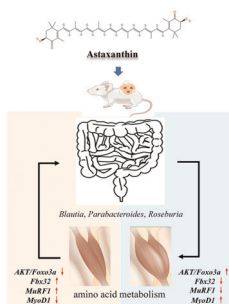
530



### *Ganoderma lucidum* methyl ganoderate E extends lifespan and modulates aging-related indicators in *Caenorhabditis elegans*

Nkwachukwu Oziamara Okoro, Arome Solomon Odiba, Junjie Han, Patience Ogoamaka Osadebe, Edwin Ogechukwu Omeje, Guiyan Liao, Yichen Liu, Cheng Jin, Wenxia Fang,\* Hongwei Liu\* and Bin Wang\*

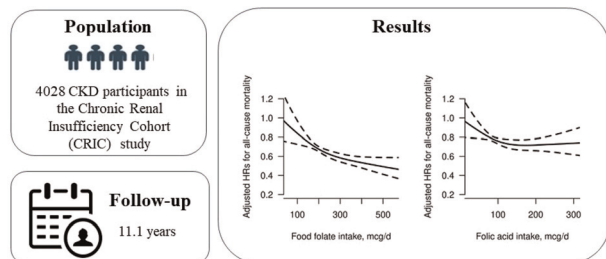
543



### Astaxanthin slows down skeletal muscle atrophy in H22 tumor-bearing mice during sorafenib treatment by modulating the gut microbiota

Pengfei Ren, Han Yue, Qingjuan Tang,\* Yuming Wang and Changhu Xue

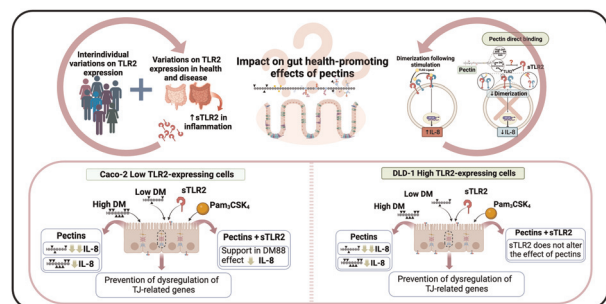
559



### Relationship of dietary intake of food folate and synthetic folic acid intake from fortified foods with all-cause mortality in individuals with chronic kidney disease

Mengyi Liu, Ziliang Ye, Sisi Yang, Yanjun Zhang, Yuanyuan Zhang, Panpan He, Chun Zhou, Fan Fan Hou\* and Xianhui Qin\*

569



### Effects of pectin's degree of methyl esterification on TLR2-mediated IL-8 secretion and tight junction gene expression in intestinal epithelial cells: influence of soluble TLR2

Naschla Gasaly,\* Xin Tang, Xiaochen Chen, Sofia Bellalta, Marcela A. Hermoso and Paul de Vos

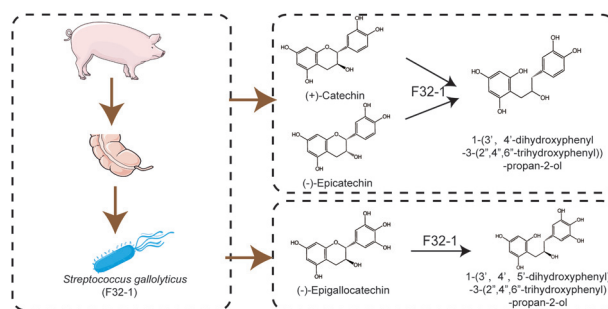


## PAPERS

580

### A newly isolated intestinal bacterium involved in the C-ring cleavage of flavan-3-ol monomers and the antioxidant activity of the metabolites

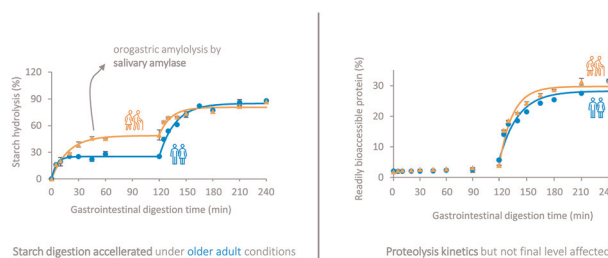
Li Wang, Ruonan Liu, Fangfang Yan, Wanbing Chen, Mo Zhang, Qun Lu, Bijun Huang and Rui Liu\*



591

### From static to semi-dynamic *in vitro* digestion conditions relevant for the older population: starch and protein digestion of cooked lentils

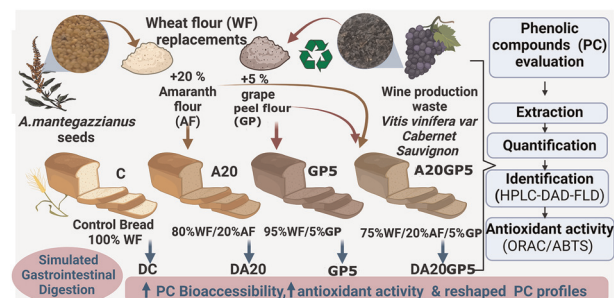
Dorine Duijsens, Sarah H. E. Verkempinck, Emma Somers, Marc E. G. Hendrickx and Tara Grauwet\*



608

### Exploration of grape pomace peels and amaranth flours as functional ingredients in the elaboration of breads: phenolic composition, bioaccessibility, and antioxidant activity

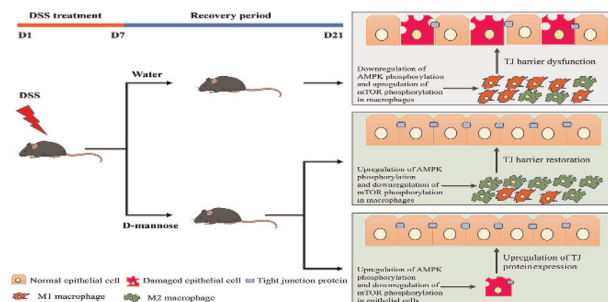
Mariela Rodríguez, Federico Bianchi, Barbara Simonato, Corrado Rizzi, Ariel Fontana and Valeria A. Tironi\*



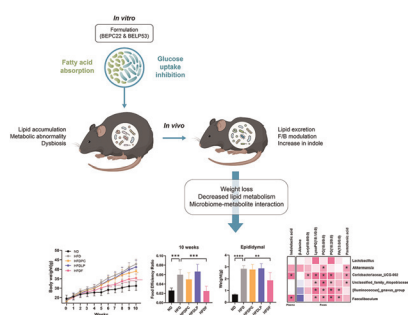
625

### D-Mannose promotes recovery from experimental colitis by inducing AMPK phosphorylation to stimulate epithelial repair

Haojie Zhang, Xue Zhao, Yifei Gao, Yao Shi, Lina Wei, Jingxin Li, Chuanyong Liu\* and Xuelian Ma\*



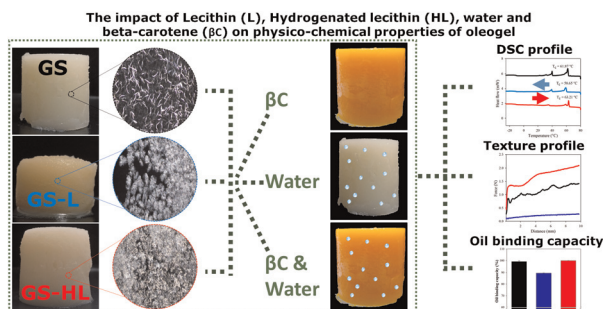
647



### Combination of *Lactocaseibacillus paracasei* BEPC22 and *Lactiplantibacillus plantarum* BELP53 attenuates fat accumulation and alters the metabolome and gut microbiota in mice with high-fat diet-induced obesity

Na-Rae Lee, Tae-Jun Kwon, Eui-Chun Chung, Jaewoong Bae, Song-Hui Soung, Hyun-Ji Tak, Jun-Young Choi, Young-Eun Lee, Nak Won Hwang, Jong Seo Lee, Kum-Joo Shin, Choong Hwan Lee, KilSoo Kim\* and Seokjin Kim\*

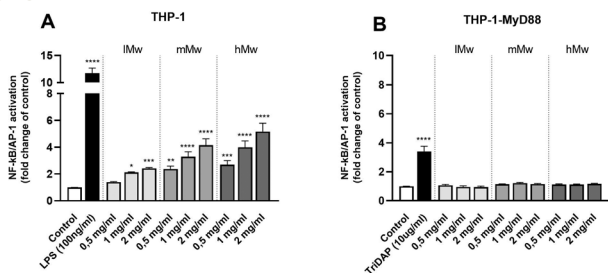
663



### Modulating edible-oleogels physical and functional characteristics by controlling their microstructure

Mohsen Ramezani, Laura Salvia-Trujillo and Olga Martin-Belloso\*

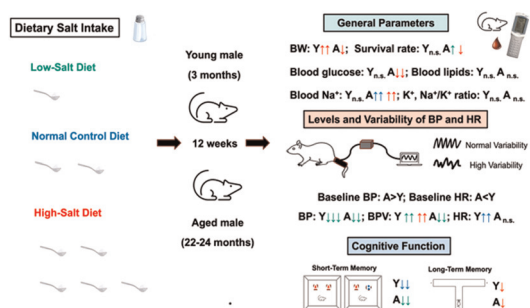
676



### Exopolysaccharide $\beta$ -(2,6)-levan-type fructans have a molecular-weight-dependent modulatory effect on Toll-like receptor signalling

Renate Akkerman,\* Marjolein M. P. Oerlemans, Michela Ferrari, Cynthia Fernández-Lainez, Bart J. de Haan, Marijke M. Faas, Marthe T. C. Walvoort and Paul de Vos

689



### Age differences in the impact of dietary salt on metabolism, blood pressure and cognitive function in male rats

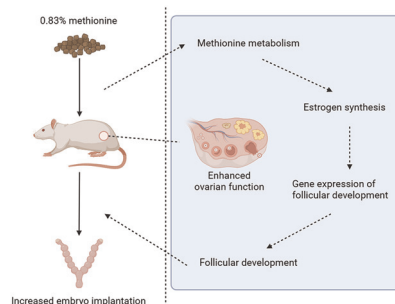
Fen Sun,\* Jin-Yang Zhang, Lu-Ping Zhao, Qi Jin, Chao Jin, Qiu-Xiang Wang, Jun-Tao Xu and Meng-Jia Yin



704

### Dietary methionine supplementation during the estrous cycle improves follicular development and estrogen synthesis in rats

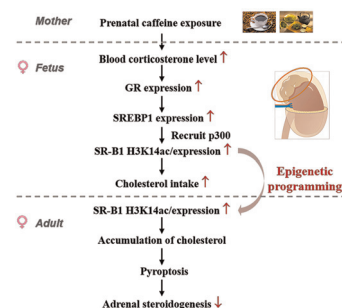
Guangxin Yang, Siyu Li, Shuang Cai, Junyan Zhou, Qianhong Ye, Shihai Zhang, Fang Chen, Fenglai Wang\* and Xiangfang Zeng\*



716

### The high-expression programming of SR-B1 mediates adrenal dysfunction in female offspring induced by prenatal caffeine exposure and its cholesterol accumulation mechanism

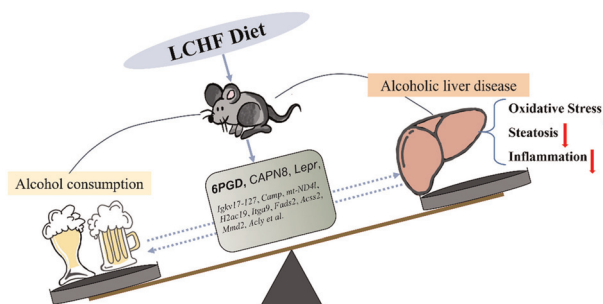
Xuan Xia, Yawen Chen, Hui Qu, Jiangang Cao and Hui Wang\*



732

### Preventive effect of low-carbohydrate high-fat dietary pattern on liver disease caused by alcohol consumption via a 6pgd-involved mechanism in mice

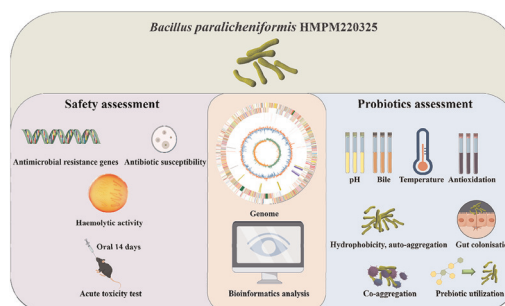
Jiannan Qiu, Fan Dong, Hui Zhuge, Qiang Han, Jiaomei Li, Rui Guo, Xiaobing Dou, Jiayu Li and Songtao Li\*



747

### Molecular identification and safety assessment of the potential probiotic strain *Bacillus paralicheniformis* HMPM220325 isolated from artisanal fruit dairy products

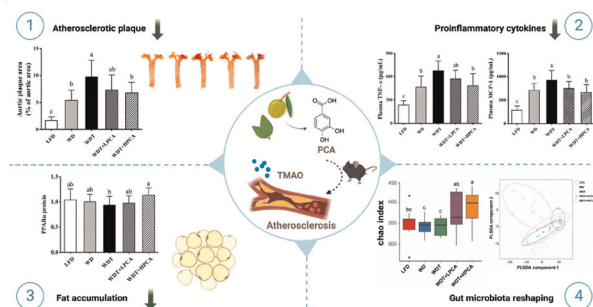
Xiao Liang, Nini Dai, Fan Yang, Haimei Zhu, Guanghui Zhang and Yongzhong Wang\*







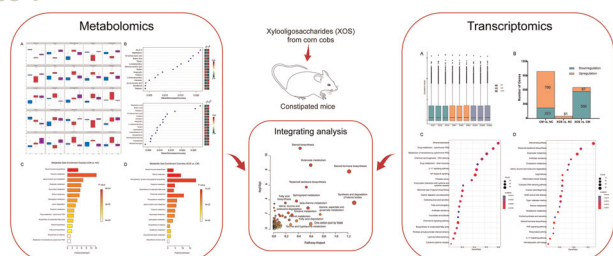
881



### Protocatechuic acid alleviates TMAO-aggravated atherosclerosis via mitigating inflammation, regulating lipid metabolism, and reshaping gut microbiota

Huafang Ding, Jianhui Liu, Zixing Chen, Shouhe Huang, Chi Yan, Erika Kwek, Zouyan He, Hanyue Zhu and Zhen-Yu Chen\*

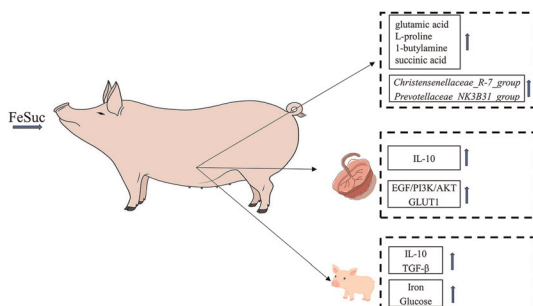
894



### Integrated metabolomics and transcriptomics revealed the anti-constipation mechanisms of xylooligosaccharides from corn cobs

Hong Song, Rui Guo, Xianbao Sun, Yuxing Kou, Xuan Ma, Yinan Chen, Lihua Song and Yan Wu\*

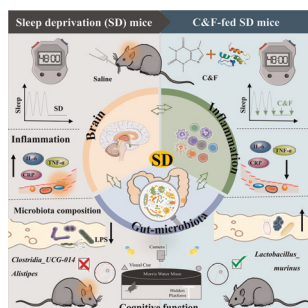
906



### Ferrous–sucrose complex supplementation regulates maternal plasma metabolism and the fecal microbiota composition and improves neonatal immunity and placental glucose transportation by activating the EGF/PI3K/AKT signaling pathways in sows

Zhenglin Dong, Hongwei Liu, Dan Wan, Xin Wu\* and Yulong Yin\*

917



### A combined effect of fish-originated collagen peptides and caffeine on the cognitive function of sleep-deprived mice

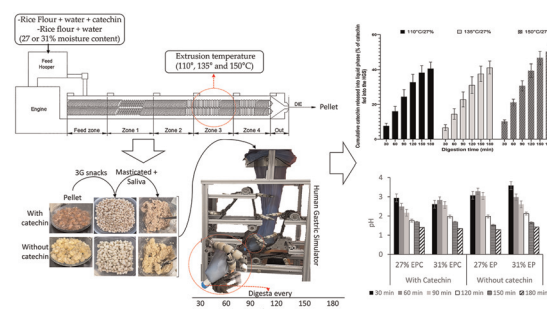
Hongkang Zhu, Shuang Bai, Wen Ma, He Qian\* and Peng Du\*



930

## Understanding the physical breakdown and catechin bioaccessibility of third generation extruded snacks enriched with catechin using the human gastric simulator

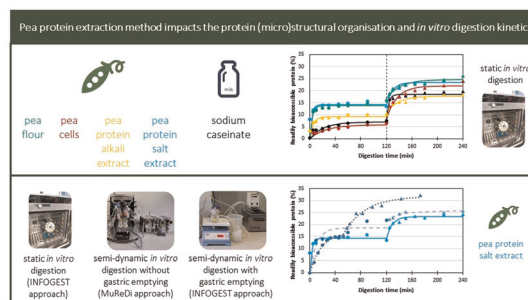
Yadira Zambrano, Gail M. Bornhorst\* and Pedro Bouchon\*



953

## Pea protein extraction method impacts the protein (micro)structural organisation and *in vitro* digestion kinetics

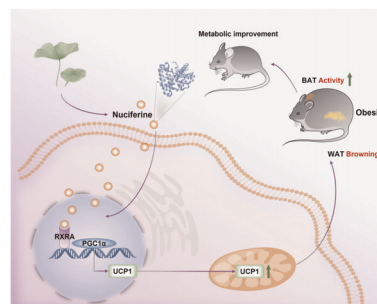
Sarah H. E. Verkempinck\*, Dorine Duijsens, Ankita Mukherjee and Peter J. Wilde



967

## Nuciferine prevents obesity by activating brown adipose tissue

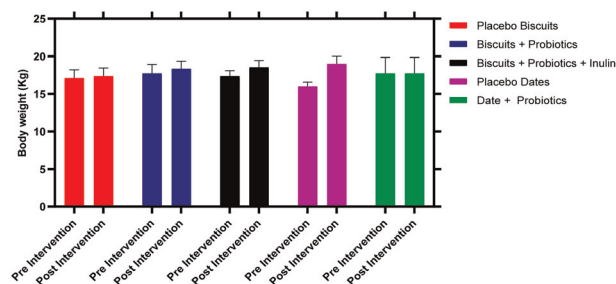
Chunlong Yan, Yang Zhan, Shouli Yuan, Yujing Cao, Yi Chen, Meng Dong, Hanlin Zhang, Li Chen, Rui Jiang, Wenjun Liu\*, Wanzhu Jin\* and Yuanyuan Huang\*



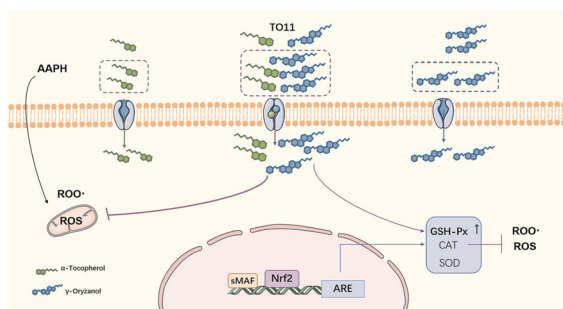
977

## Dietary intervention with edible film-coated multistrain probiotic Lactacaseibacilli in nondairy food matrices significantly increased the recovery of fecal viable Lactacaseibacilli and improved the performance of several colonic biomarkers among slightly malnourished preschool children

Mosab Gad\*, Amr S. Elbahnasawy, Asmaa A. Ramadan, Gamal Abdel Naser Yamamah and Laila Hussein\*



992



### Antioxidant interaction between $\alpha$ -tocopherol and $\gamma$ -oryzanol in HepG2 cells

Zhu Zhu, Ying Xu, Yiwen Guo, Ruijie Liu,\* Ming Chang and Xingguo Wang

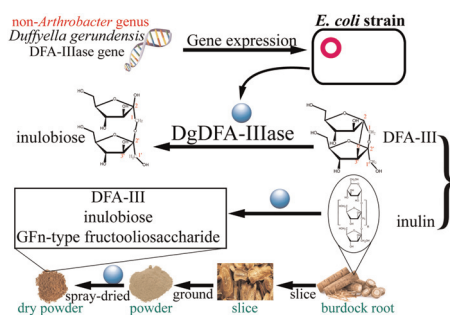
1004



### Black soybean seed coat polyphenols have different effects on glucose and lipid metabolism in growing and young adult mice

Toshiki Nishijima, Yoko Yamashita and Hitoshi Ashida\*

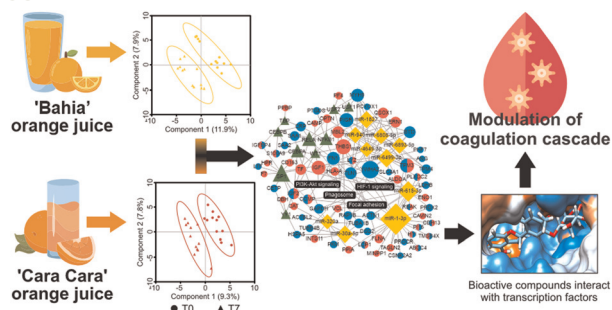
1021



### Innovative application of a novel di-D-fructofuranose 1,2':2,3'-dianhydride hydrolase (DFA-IIIase) from *Duffeyella gerundensis* A4 to burdock root to improve nutrition

Shuhuai Yu,\* Zhenlong Wang, Qiting Li, Tong Wang and Wei Zhao

1031



### Plasma proteome profiling reveals molecular mechanisms underlying the effects of daily consumption of 'Bahia' and 'Cara Cara' orange juices

Eric de Castro Tobaruela,\* Elisa Brasili, Laila Zeraik, Dragan Milenkovic, Neuza Mariko Aymoto Hassimotto and Franco Maria Lajolo



## CORRECTIONS

1050

**Correction: Association between low-sodium salt intervention and long-term blood pressure changes is modified by ENaC genetic variation: a gene–diet interaction analysis in a randomized controlled trial**

Hao Sun, Ying Zhou, Shuyi Jiang, Dan Zhao, Huamin Li, Yue Lu, Bing Ma\* and Bo Zhou\*

1051

**Correction: *Lactobacillus plantarum* and *Bifidobacterium bifidum* alleviate dry eye in mice with exorbital lacrimal gland excision by modulating gut inflammation and microbiota**

Soo-won Yun, Young-Hoo Son, Dong-Yun Lee, Yoon-Jung Shin, Myung Joo Han\* and Dong-Hyun Kim\*

1052

**Correction: *Gardenia jasminoides J. Ellis* extract alleviated white matter damage through promoting the differentiation of oligodendrocyte precursor cells via suppressing neuroinflammation**

Caixia Zang, Hui Liu, Cheng Ju, Fangyu Yuan, Jingwen Ning, Meiyu Shang, Xiuqi Bao, Yang Yu, Xinsheng Yao and Dan Zhang\*

