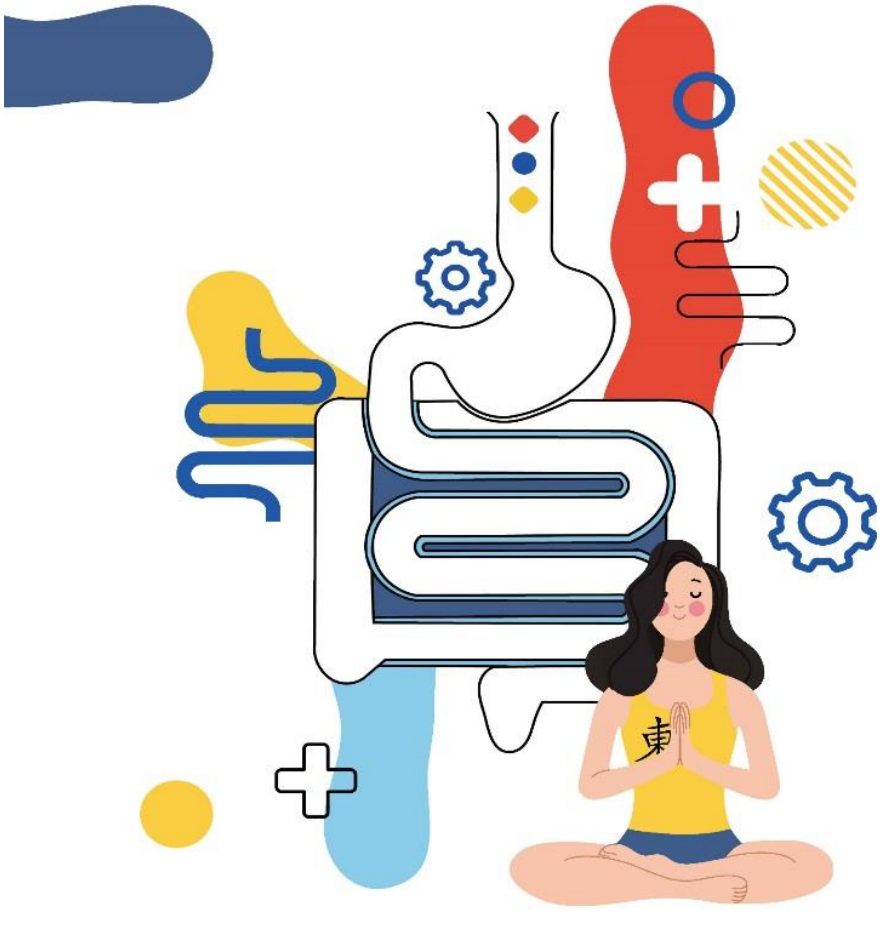
关注您的生命质量工程

LQE: Life Quality Engineering



晓东宜健（苏州）仪器设备有限公司

Xiao Dong Pro-health (Suzhou) Instrumentation Co Ltd

体外消化解决方案，满足您不同研究与发展需求

In vitro digestive devices, to match your R&D needs

公司简介
Company Introduction

晓东宜健（苏州）有限公司延承了自2003-2004年间最初在新西兰奥克兰大学提出的生物仿生化工的概念，并改进和完善了自2006年之后在澳大利亚莫纳什大学创建和测试的鼠胃和人胃消化系统。迄今为止本公司已研制出一系列多样性的“准真实”现代化仿生消化系统设备。

Xiao Dong Pro-health (Suzhou) Instrumentation Co Ltd has extended the concept of biology-inspired chemical engineering originally established in The University of Auckland (New Zealand) in the 2003-2004 period and the workable devices constructed and tested in Monash University (Australia) since 2006. These are considered as the Biomimic “Near Real” *In Vitro* Digestion Systems. The rat system and human system, and a variety of related devices have been further developed over many years till now. Today, a series of “Near Real” modern devices are manufactured by the company.

准真实体外动态消化系统
‘Near real’ *In Vitro* Digestive Systems

什么是‘准真实’体外消化系统?
What is ‘ Near Real ’ *In Vitro* Digestive System?

尽可能真实的模拟消化器官的形态、解剖结构、运动和生化环境。
Mimicking real digestive organs as close as possible based on anatomical structure and morphology, physical motility and bio-chemical environment.

‘准真实’的体外消化系统不仅需要模拟胃肠道内的物理运动和生物化学条件，还应提供真实的胃肠道形态。
‘ Near Real ’ *In Vitro* Digestive System not only simulates the physical and bio-chemical conditions and processes in the gastrointestinal tract, but also provides similar gastrointestinal morphology.

(Chen, X.D. International Congress on Food Engineering and Technology. Bangkok, Thailand, 2012)

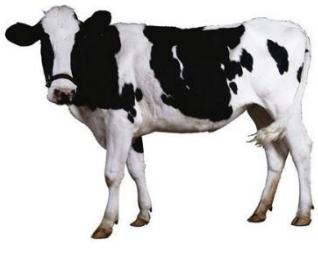
较前沿的体外消化系统
Advanced *in vitro* digestive systems

宜健认为人要有人的高度仿生消化系统，牛要有针对牛的系统、猪要有猪的专门系统，以此类推。不同物种消化系统的规模、特点不一样，同一种“小白鼠”不可能达到不同生物实验的要求。

Different animals due to their distinct differences in anatomies and functions in general should have their corresponding *in vitro* systems. These are relevant perhaps for developing animal feeds (stock foods or pet foods) etc. The company has established a general methodology to design and construct animal specific devices, chicken, pig, fish or even cow.





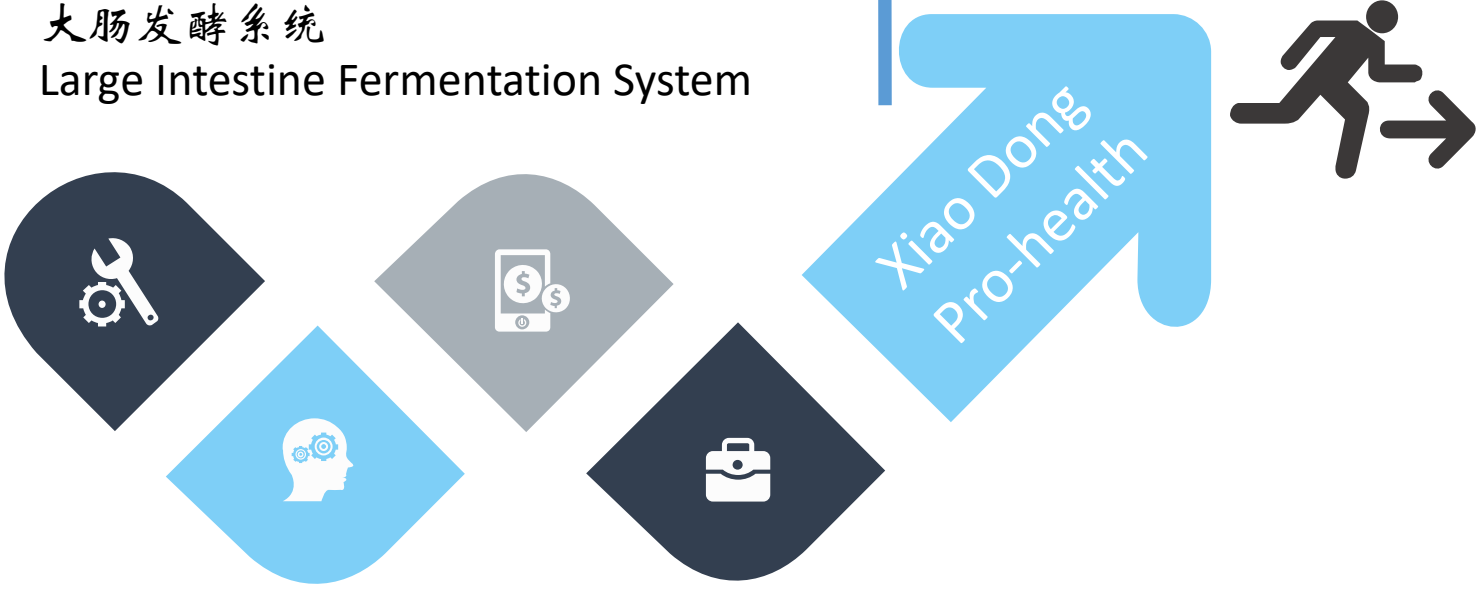


公司业务
Business Introduction

设备 Equipment

动态人胃肠消化系统
Dynamic Human Stomach-Intestinal (DHSI)
动态人胃消化系统
Dynamic Human Stomach (DHS)
动态鼠胃消化系统
Dynamic Rat Stomach
大肠发酵系统
Large Intestine Fermentation System

人体口腔系统
Human Oral System
冷冻浓缩系统
Freeze Concentration System
微质构仪
Micro Texture Analyzer



技术服务
Technical Service

国内外高校科研院所
Universities and Research iInstitutes
乳制品企业
Dairy Industry
功能食品行业
Functional Food Industry
药企
Pharmaceutical Industry
饲料行业
Feed Industry

耗材
Consumables

软模型
'Near Real' Model
消化系统进样体系
Sampling System
消化液产品
Digestive Juice Products

设备销售流程
Purchasing Process

联系我们
Contact

Web：http://www.smartdongest.com/
Wechat：晓东宜健仪器设备有限公司
Phone：0512-85553796/18896516569
Email：xd_prohealth@sina.com
xiaolannuo@163.com

前期沟通
Communication

确认配置需求 Fill the test form
获取报价及供货周期Get a quote and delivery time
确认购买流程 Confirm the purchase process

合同实施
Contract implementation

签订合同 Signing contract
设备运输 Transport
设备安装调试 Installation and commissioning
设备使用培训 Operation training
设备验收 Acceptance
设备收款 Payment

技术服务测试流程
Technical service process

联系我们 Contact

Web：http://www.smartdongest.com/
Wechat：晓东宜健仪器设备有限公司
Phone：0512-85553796/18896516569
Email：xd_prohealth@sina.com
xiaolannuo@163.com

前期沟通 Communication

填写样品检测申请表 Fill the test form
制定初步实验方案 Determine the preliminary experimental plan
根据实验方案报价 Quoted price
签订合同 Signing contract

项目实施 Project implementation

客户提供样品 Customers provide samples
支付预付款 Prepayment
开展预实验 Pre-test
确定实验方案 Determine the experimental plan
进行样品检测或寄回样品 Sample testing or send samples back

实验方案参考
Reference of experimental scheme

食物基质
Food substrate

分离组分
The separation of components

重新调制食物
Re-preparation of food

Interactions between components
组分之间的交互作用

例如：
不同种类的大米
i.e. Different kinds of rice

煮熟的食物
Cooked food

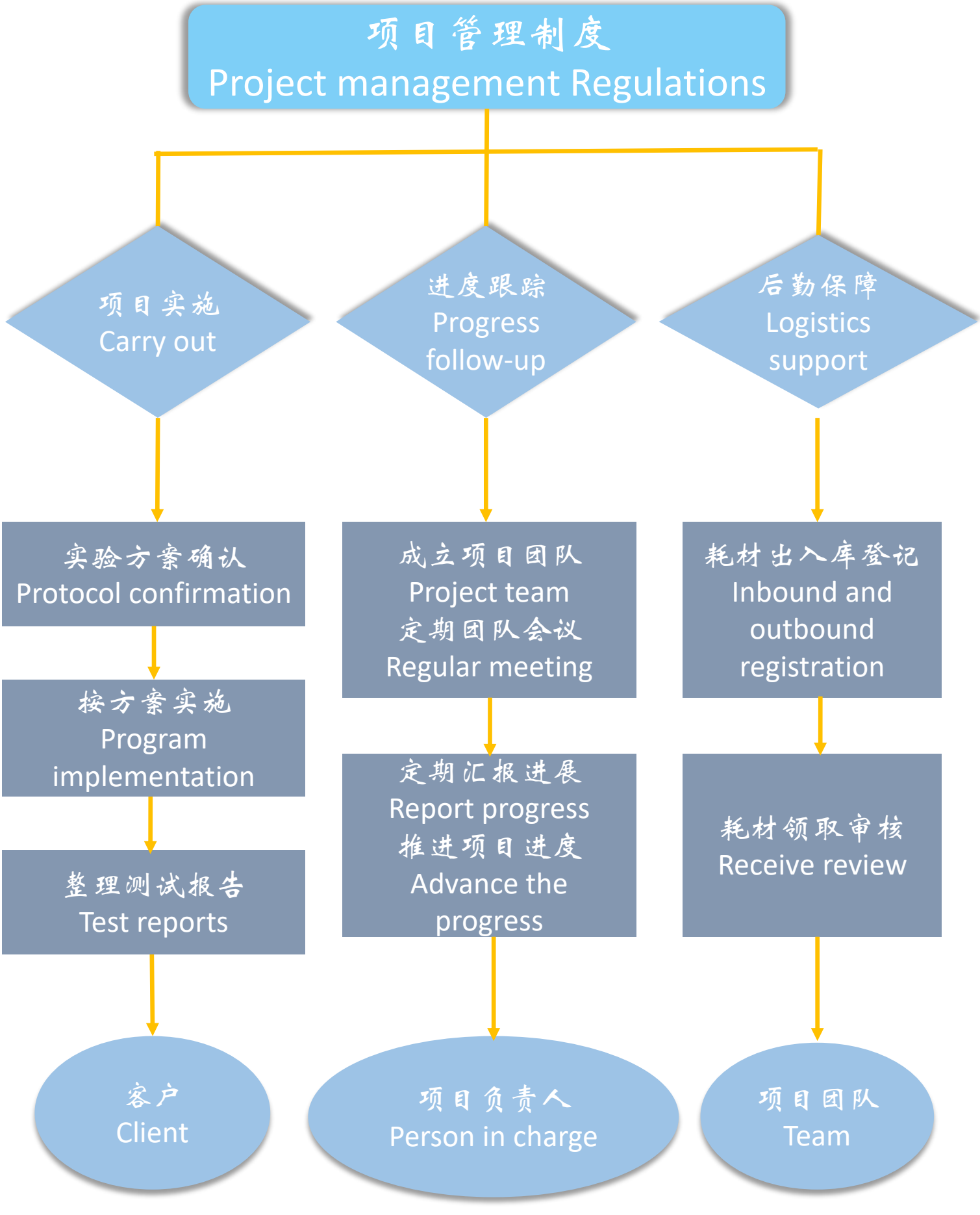
设计&制作口味佳的健康食物（慢消化）
Design & make healthy food with good taste (perhaps slowly digested)

假设检验
Hypothesis testing
拒绝假设
Refuse to assume
提出假设
Hypothesized

消化率/动力学
Digestibility kinetics
理化分析（SEM，XRD，RVA，DSC，NMR等）
Physical and chemical analysis (SEM, XRD, RVA, DSC, NMR, etc.)
结构分布的时间演化
Time evolution of structural distribution

不同时间和部位取样
Sampling at different times and locations

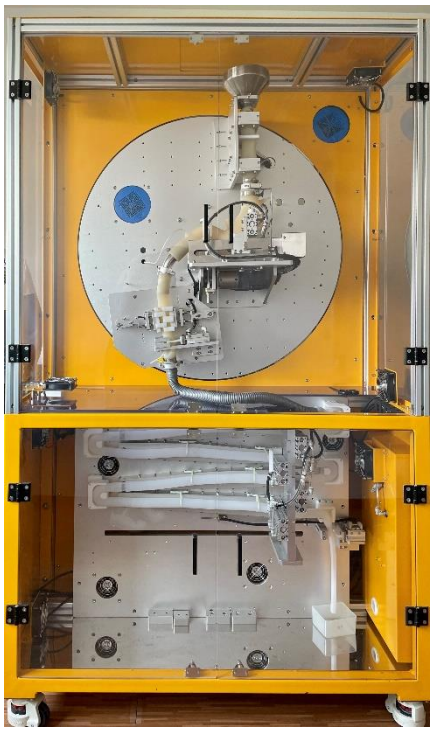
项目管理
Project management



公司产品
Product

动态鼠胃-肠消化系统
Dynamic *In Vitro* Rat Stomach-Intestine System

L*W*H = 950mm*550mm*920mm
Weight: 50Kg



动态人胃肠消化系统
Dynamic *In Vitro* Human Stomach-Intestine System

L*W*H = 1200mm*1150mm*2000mm
Weight: 750Kg

备注：可单独购买动态人胃消化系统。
Note：The Dynamic *In Vitro* Human Stomach System can be purchased separately.

动态婴儿胃消化系统
Dynamic Baby Stomach

L*W*H = 2400mm*1330mm*1610mm
Weight: 400Kg

公司产品
Product

人体口腔系统
Human Oral System

Left: L*W*H = 750mm* 800mm*870mm
Right: L*W*H = 500mm* 350mm*800mm
Weight: 120 Kg

大肠段发酵系统
Large Intestine Fermentation System

L*W*H =450mm*450mm* 900mm
Weight: 100Kg

公司产品
Product

冷冻浓缩系统
Freeze Concentration System

L*W*H = 600mm*400mm*900mm
Weight: 40Kg

微质构仪
Micro Texture Analyzer

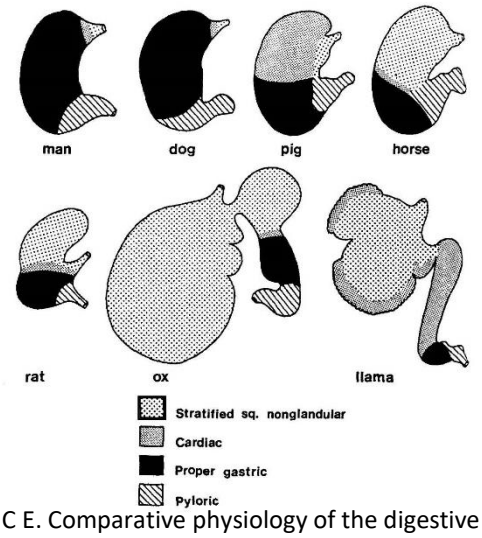
L*W*H = 600mm* 600mm*1300mm
Weight: 75 Kg

备注：其他物种相应的准真实或准器官体外消化系统模型可根据客户需求订制
Note: The 'near real' digestive organs and *in vitro* digestive systems for the other species can be customized

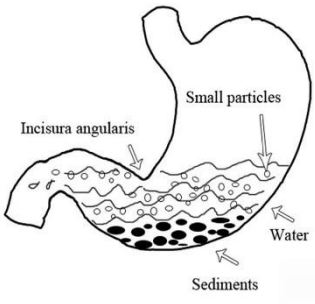
公司产品
Product

不同物种的胃的形态示意图

A sketch of the stomachs of different species

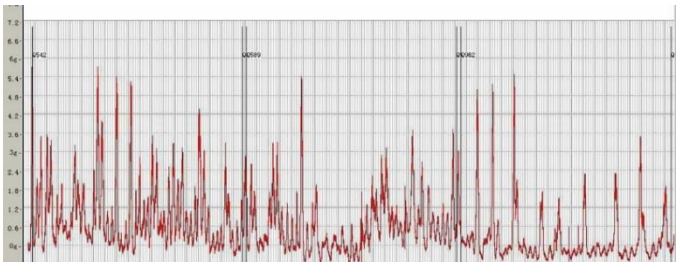


Stevens C E. Comparative physiology of the digestive system[J]. Duke's physiology of domestic animals, 1977: 216-232.



食糜在人胃中的分布

Distribution of chyme in the human stomach

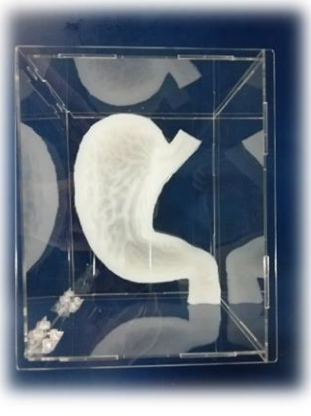
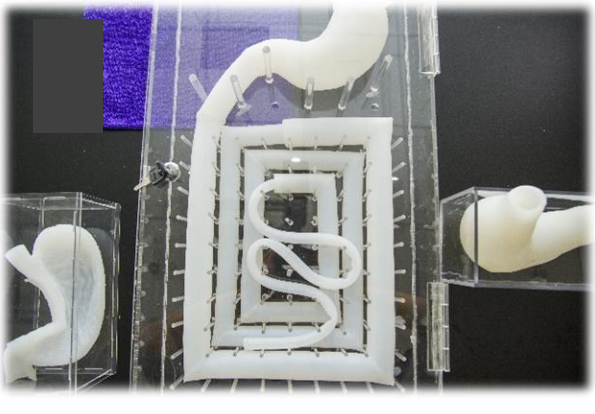


模拟真实胃的实际收缩张力

Simulate the actual contraction force of the real stomach





具备接近真实胃的形态和内部生理结构，1:1倒模，提高试验重复性和准确性

It has the shape and internal physiological structure similar to the real stomach, 1:1 inverted mold, which improves the repeatability and accuracy of the test

应用领域
Applications fields

碳水化合物
Carbohydrate

功能多糖
Functional polysaccharide

蛋白质
Protein

脂肪
Lipid

重金属代谢
Heavy metal metabolism

真菌毒素污染物
Mycotoxin contaminant

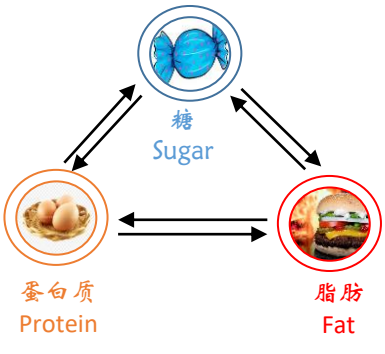
益生菌
Probiotics

动物营养
Animal nutrition

……

体外消化系统可广泛应用于食品营养学，功能性活性物质代谢研究，药物释放动力研究，益生菌及益生元，食品毒理学研究，动物营养及饲料研究等。公司为客户量身定制，科学规划，提供专业的体外消化解决方案。

In vitro digestive system can be widely applied in food nutrition, functional active substances metabolism research, drug release dynamics research, probiotics and probiotics, food toxicology research, animal nutrition and feed research. The company provides customers with scientific and professional *in vitro* digestion solutions.



单一营养物质/功能成分/药物/污染物在消化道内的代谢
Metabolism of a single nutrient/functional component/drug/pollutant in the digestive tract

混合成分在消化过程中的相互作用
The interaction of mixed components during digestion

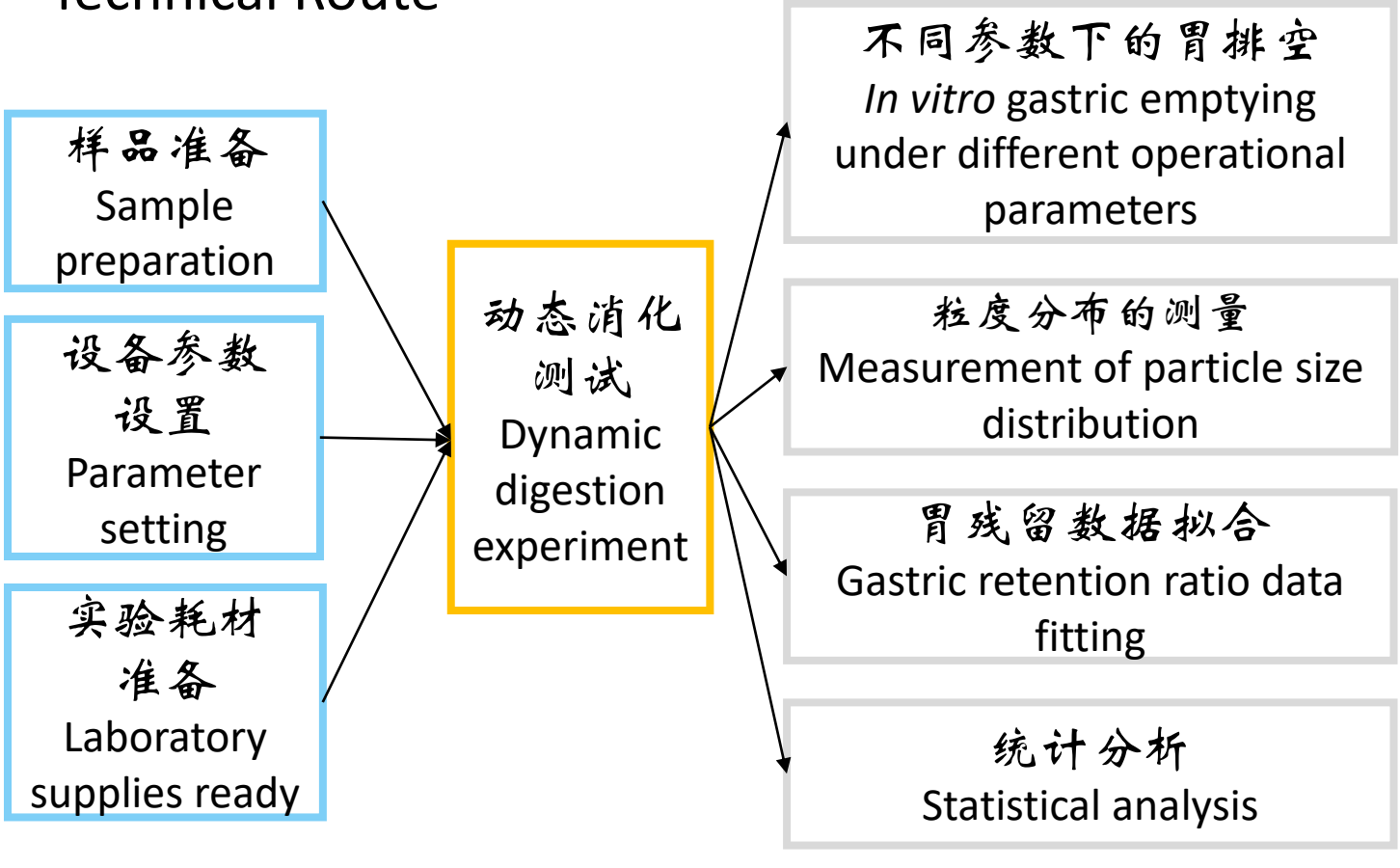
药物在消化道内的释放、代谢、有效利用率
Release, metabolism and effective utilization of drugs in the digestive tract

案例一
Case One

研究领域 Research Areas	乳制品 Dairy products
关键词 Key Words	仿生胃消化系统；胃排空；奶酪 *in vitro* human digestion system; gastric emptying; cheese

Zhen Peng, Peng Wu, Jingjing Wang, Didier Dupont, Oliva Menard, Romain Jeantet, and Xiao Dong Chen. Achieving realistic gastric emptying curve in an advanced dynamic *in vitro* human digestion system: experiences with cheese - a difficult to empty material. Food & Function, 2021, DOI: 10.1039/D0FO03364B.

技术路线 »»
Technical Route



案例一
Case One

结果展示 »»
Result display

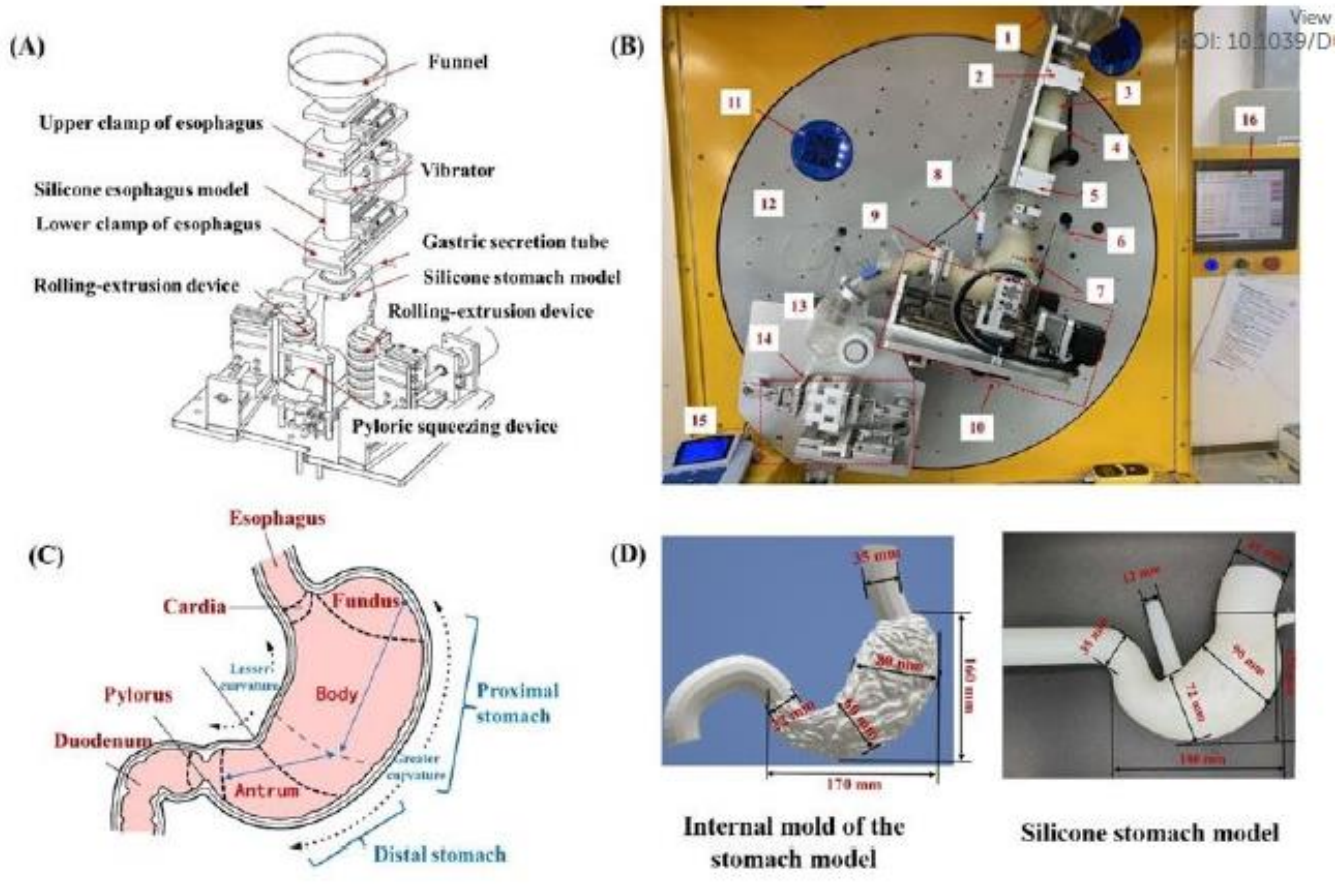


Fig. 1. (A) Schematic diagram of the advanced dynamic *in vitro* human stomach system (DHS-IV); (B) image of the DHS-IV; (C) anatomy of the human stomach; (D) the 3D-printed internal mold of the human stomach and the final silicone stomach model. 1: funnel for sample loading; 2: upper clamp of esophagus; 3: silicone esophagus model; 4: esophagus vibrator; 5: lower clamp of esophagus; 6: gastric secretion tube; 7: silicone stomach model; 8: pH probe; 9: pyloric valve; 10: stomach rolling-extrusion device; 11: heating lamp; 12: turntable; 13: digesta collection beaker; 14: duodenum squeezing device; 15: pH meter; 16: touch screen operation panel.

案例一
Case One

结果展示 »»
Result display

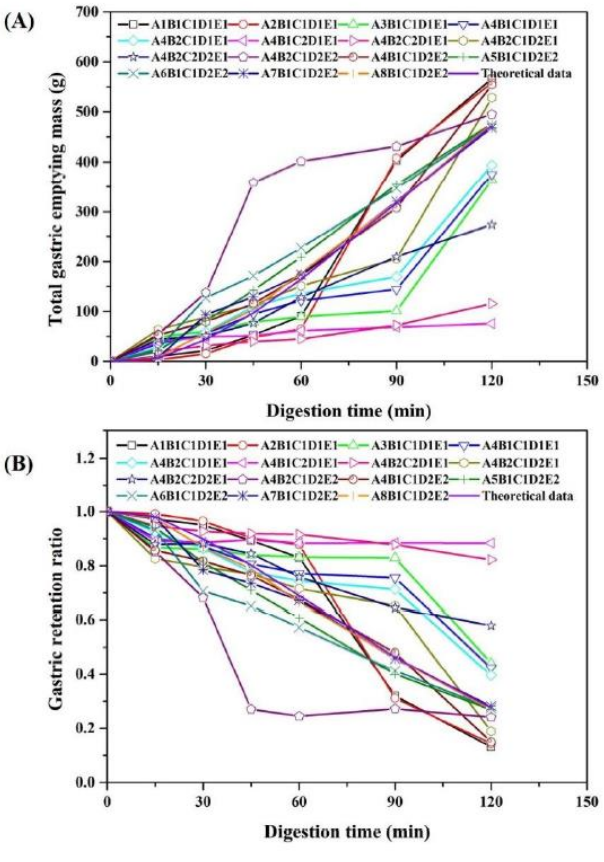


Fig. 6. Gastric emptying profiles for the Cheddar cheese obtained under different combinations of operational parameters of the DHS-IV. A: the changes in the total (cumulative) mass of gastric digesta emptied out of the stomach with respect to digestion time; B: the changes in the gastric retention ratio in relation to time. The gastric retention ratio is defined as the mass of the digesta retained in the stomach as a percentage of total mass intake (including the cheese, SGF and HCl).

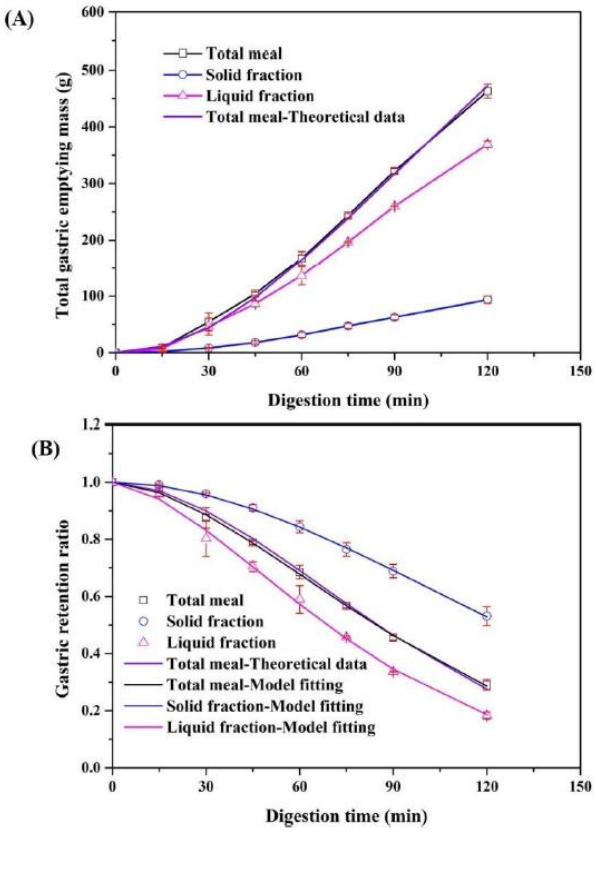


Fig. 8. Comparision of *in vitro* gastric emptying profiles of the total meal obtained under the optimal combination of operational parameters (A8B1C1D2E2) with the theoretical data. A: cumulative mass of the total meal, solid fraction and liquid fraction emptied out of the stomach with respect to digestion time; B: gastric retention ratios of the total meal, solid fraction and liquid fraction fitted with Elashoff's power exponential model.

案例一
Case One

结果展示 »»
Result display

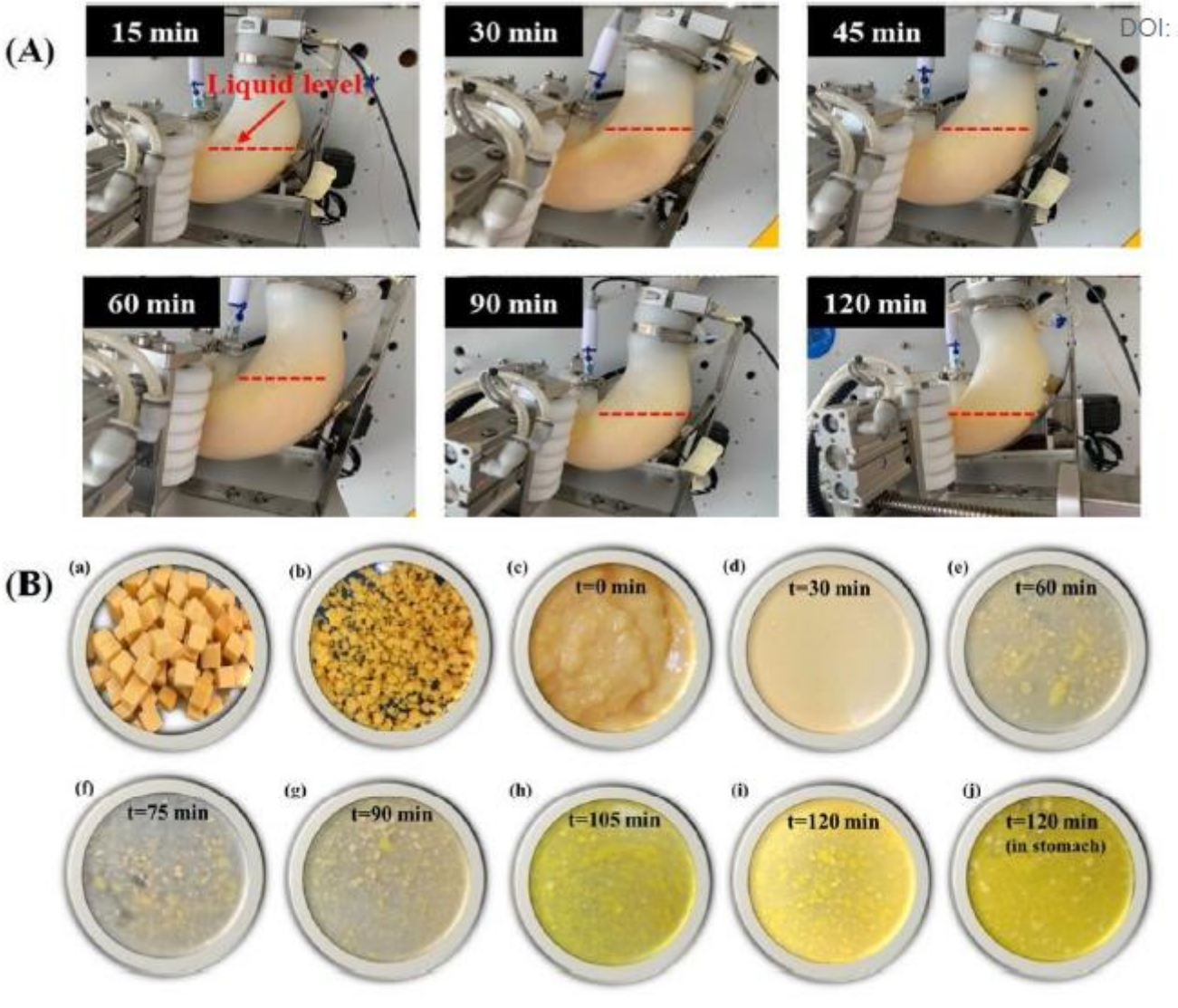


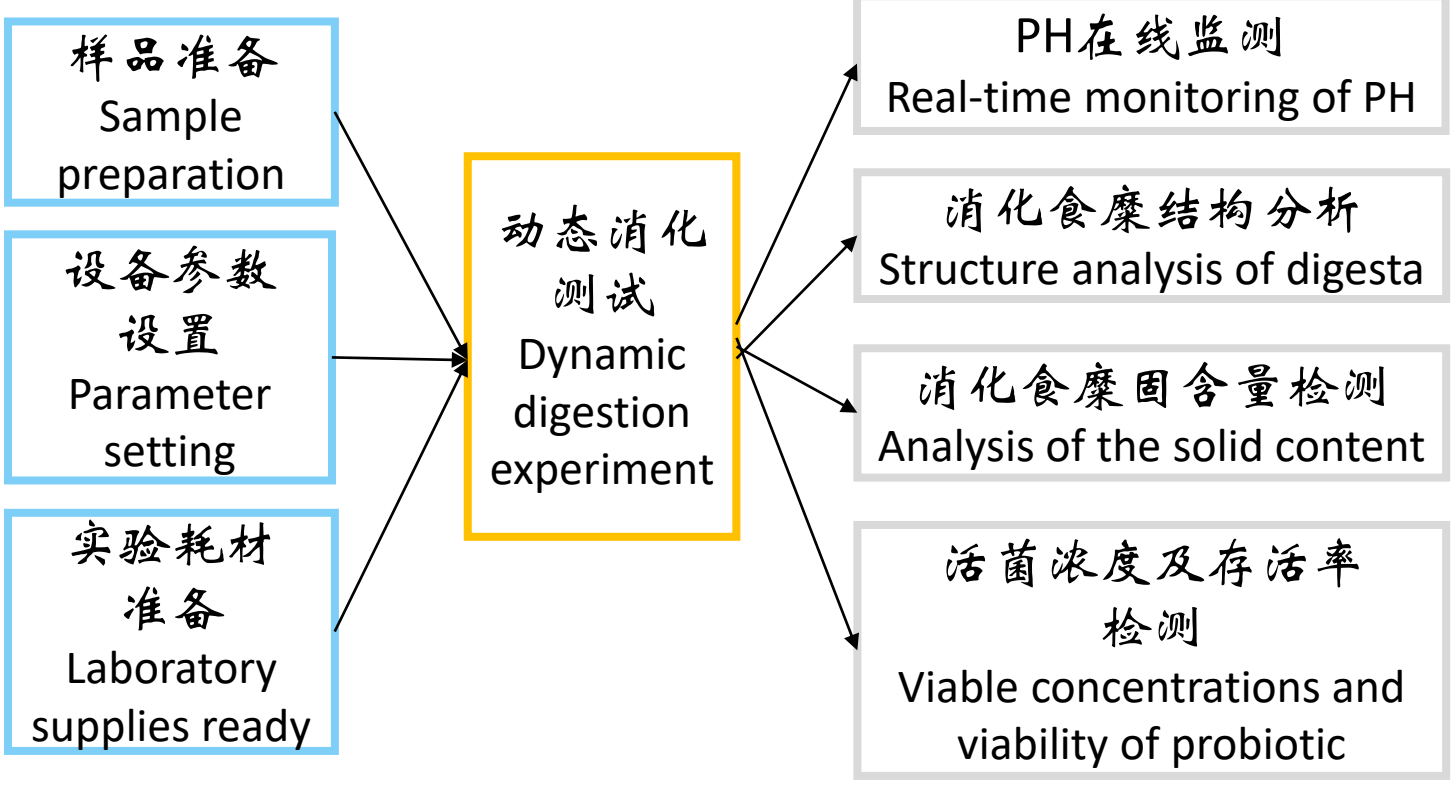
Fig. 7. Evolutions of gastric liquid level (A) and apparent moprhology (B) of the gastric digesta of the cheese matriex during digestion in the DHS-IV under optimal combination of operational parameters (A8B1C1D2E2). As shown in Fig. 7B, the letters a and b represent the cubic Cheddar cheese after processing and the grinded cheese after artificial oral mastication by a food processor, respectively. c represents the initial (t=0) cheese sample for gastric digestion. The letters d to i represent the gastric digesta emptied out of the stomach at different digestion times, while j is the digesta retained in the stomach model after 120 min digestion.

案例二
Case Two

研究领域 Research Areas	乳制品 Dairy products
关键词 Key Words	发酵乳；酪蛋白；乳清蛋白；益生菌；存活率；胃肠道消化模型；凝聚物 fermented milk; casein; whey protein; probiotics; viability; gastrointestinal digestion model; coagulum

伍鹏，王娟，王晶晶，陈晓东，司徒文佑，段素芳. 基于仿生胃肠道模型的发酵乳中益生菌存活率评价. 食品与发酵工业, 2020, DOI:10.13995/j.cnki.11-1802/ts.026269
WU Peng, WANG Juan, WANG Jingjing, CHEN Xiaodong, Szeto Ignatius Man-Yau, DUAN Sufang. Evaluation of probiotics viability in fermented milk based on a biomimetic gastrointestinal model. Food and Fermentation Industries. 2020, DOI:10.13995/j.cnki.11-1802/ts.026269

技术路线 »»
Technical Route



案例二
Case Two

结果展示 »»
Result display

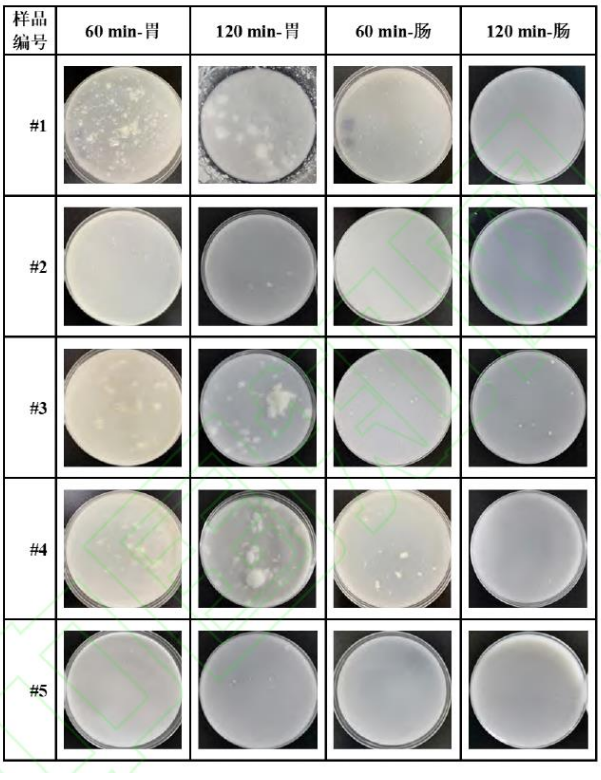


图2 不同发酵乳样品在模拟动态胃肠道消化过程中的表观形态结构

Fig.2 Apparent morphological structure of different fermented milk samples during simulated dynamic gastrointestinal digestion

表3 动态模拟胃肠道消化过程中胃和肠食糜固含量及pH的变化

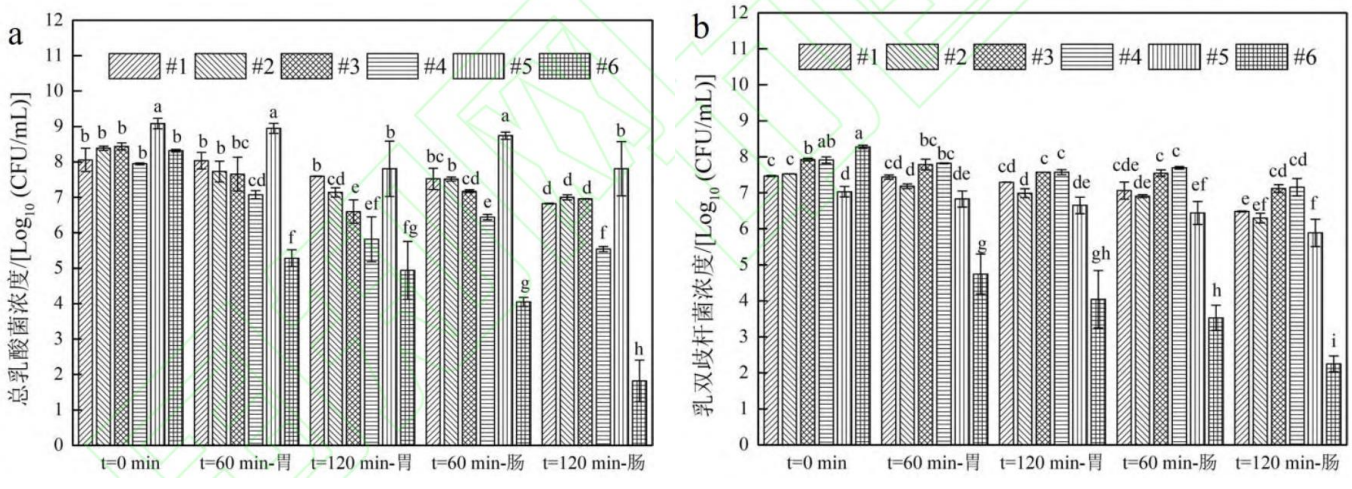
Table 3 Changes in the solid content and pH of the gastric and intestinal digesta during simulated dynamic gastrointestinal digestion

样品编号	固含量/（g • mL $^{-1}$）					pH				
	t=0 min	*t*=60 min（胃）	*t*=120 min（胃）	*t*=60 min（肠）	*t*=120 min（肠）	*t*=0 min	*t*=60 min（胃）	*t*=120 min（胃）	*t*=60 min（肠）	*t*=120 min（肠）
#1	0.214 ± 0.005^{ab}	0.140 ± 0.012^{c}	0.083 ± 0.014^{e}	0.078 ± 0.003^{e}	0.040 ± 0.003^{f}	4.38 ± 0.04^{d}	3.49 ± 0.00^{e}	3.25 ± 0.01^{e}	7.11 ± 0.07^{b}	7.23 ± 0.05^{b}
#2	0.190 ± 0.011^{b}	0.132 ± 0.012^{c}	0.072 ± 0.001^{e}	0.069 ± 0.000^{e}	0.037 ± 0.005^{f}	4.25 ± 0.04^{d}	2.80 ± 0.30^{fg}	2.40 ± 0.12^{gh}	7.16 ± 0.03^{b}	7.39 ± 0.11^{b}
#3	0.205 ± 0.012^{b}	0.146 ± 0.018^{c}	0.079 ± 0.003^{e}	0.081 ± 0.003^{e}	0.048 ± 0.005^{f}	4.23 ± 0.07^{d}	2.48 ± 0.31^{gh}	2.45 ± 0.21^{gh}	6.97 ± 0.03^{b}	7.13 ± 0.03^{b}
#4	0.223 ± 0.003^{a}	0.131 ± 0.006^{c}	0.072 ± 0.007^{e}	0.104 ± 0.010^{d}	0.044 ± 0.004^{f}	4.20 ± 0.06^{d}	2.10 ± 0.21^{hi}	1.90 ± 0.22^{i}	6.18 ± 0.06^{c}	7.04 ± 0.02^{b}
#5	0.212 ± 0.001^{ab}	0.126 ± 0.000^{c}	0.068 ± 0.006^{e}	0.081 ± 0.003^{e}	0.042 ± 0.007^{f}	4.44 ± 0.04^{d}	3.70 ± 0.08^{e}	3.29 ± 0.16^{e}	7.52 ± 0.21^{b}	7.38 ± 0.04^{b}
#6	0.002 ± 0.000^{i}	0.007 ± 0.000^{h}	0.010 ± 0.000^{gh}	0.016 ± 0.000^{gh}	0.015 ± 0.000^{g}	5.83 ± 0.06^{c}	1.40 ± 0.12^{j}	1.44 ± 0.01^{j}	8.66 ± 0.06^{a}	8.63 ± 0.00^{a}

注：固含量或 pH 数据中不同小写字母表示差异显著（$P < 0.05$）

案例二
Case Two

结果展示 »»
Result display



a – 总乳酸菌*lactobacillus*；b – 乳双歧杆菌*bifidobacterium lactis*

图3 模拟动态胃肠道消化过程中活菌浓度的变化

Fig. 3 Changes in viable concentrations of probiotic during simulated dynamic gastrointestinal digestion

表4 总乳酸菌和乳双歧杆菌在模拟动态胃肠道消化过程中存活率的变化

Table 4 Changes in the viability of total lactobacillus and bifidobacterium lactis during simulated dynamic gastrointestinal digestion

样品编号	消化时间/min	胃内存活率/%		小肠内存活率/%	
		总乳酸菌	乳双歧杆菌	总乳酸菌	乳双歧杆菌
#1	60	97 ± 22^{a}	94 ± 16^{a}	29 ± 2^{d}	47 ± 24^{cd}
	120	45 ± 30^{cd}	67 ± 2^{c}	8 ± 5^{efg}	11 ± 0^{ef}
#2	60	25 ± 12^{d}	46 ± 7^{c}	13 ± 0^{e}	24 ± 2^{d}
	120	6 ± 1^{f}	30 ± 9^{cd}	4.0 ± 0.1^{f}	6 ± 2^{f}
#3	60	23 ± 16^{d}	80 ± 33^{ab}	6 ± 2^{f}	44 ± 13^{c}
	120	2 ± 1^{g}	45 ± 4^{cd}	3 ± 1^{fg}	16 ± 2^{e}
#4	60	14 ± 3^{e}	82 ± 14^{ab}	3 ± 1^{f}	63 ± 18^{c}
	120	2 ± 1^{g}	49 ± 17^{cd}	0.4 ± 0.1^{h}	23 ± 15^{de}
#5	60	$7 3 \pm 2^{bc}$	64 ± 11^{c}	46 ± 5^{c}	28 ± 10^{d}
	120	12 ± 11^{ef}	43 ± 8^{c}	12 ± 10^{ef}	8 ± 4^{ef}
#6	60	0.10 ± 0.04^{i}	0.06 ± 0.05^{i}	$0.005\ 8 \pm 0.002\ 1^{j}$	$0.002\ 6 \pm 0.000\ 6^{j}$
	120	0.13 ± 0.12^{h}	0.02 ± 0.02^{i}	$0.000\ 7 \pm 0.000\ 7^{j}$	$0.000\ 6 \pm 0.000\ 5^{j}$

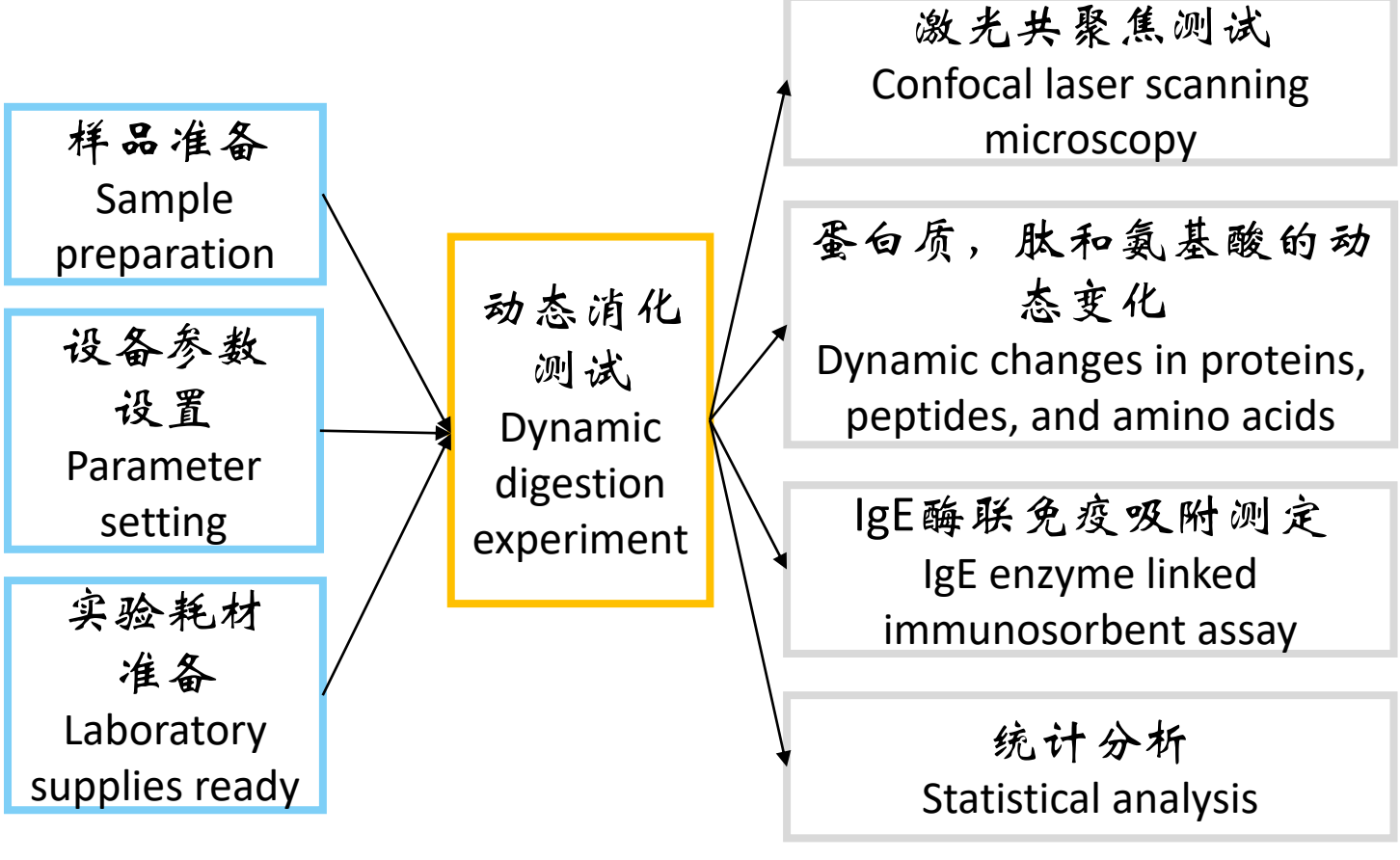
注：不同小写字母表示差异显著（$P < 0.05$）

案例三
Case Three

研究领域 Research Areas	蛋白营养与功能 Protein nutrition and function
关键词 Key Words	乳酸发酵；免疫球蛋白；大豆蛋白；体外动态胃肠消化模型 lactic acid fermentation; immunoglobulin; soy Proteins; *in vitro* dynamic gastrointestinal digestion model

Jin Huang, Zhen Liu, Xin Rui, Lamia L'Hocine, Qiuqin Zhang, Wei Li and Mingsheng Dong . Assessment of the effect of lactic acid fermentation on the gastroduodenal digestibility and immunoglobulin E binding capacity of soy proteins via an *in vitro* dynamic gastrointestinal digestion model. Food & Function, 2020, DOI: 10.1039/d0fo02023k

技术路线 »»
Technical Route



案例三
Case Three

结果展示 »»
Result display

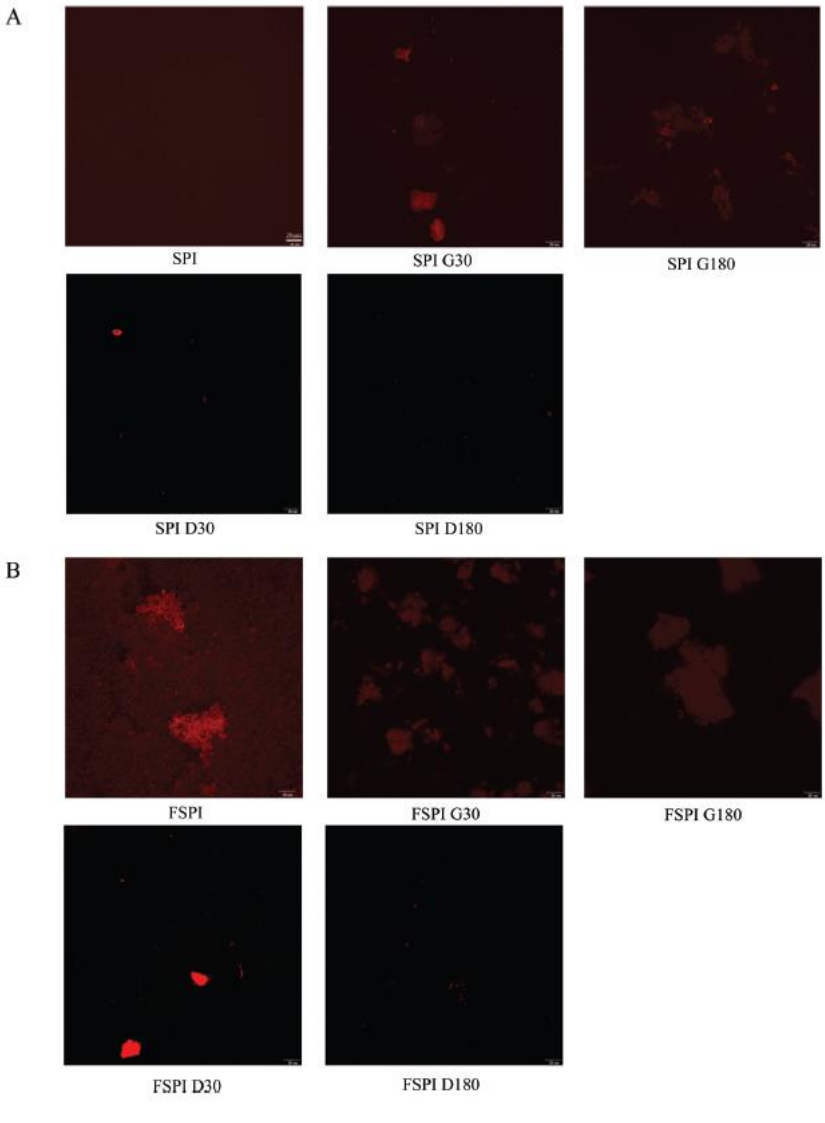


Fig. 3 Microstructures of gastric and duodenal digestates monitored via CLSM (A) SPI and (B) FSPI. G30: Gastric digestion for 30 min; G180: gastric digestion for 180 min; D30: duodenal digestion for 30 min; and D180: duodenal digestion for 180 min.

案例三
Case Three

结果展示 »»
Result display

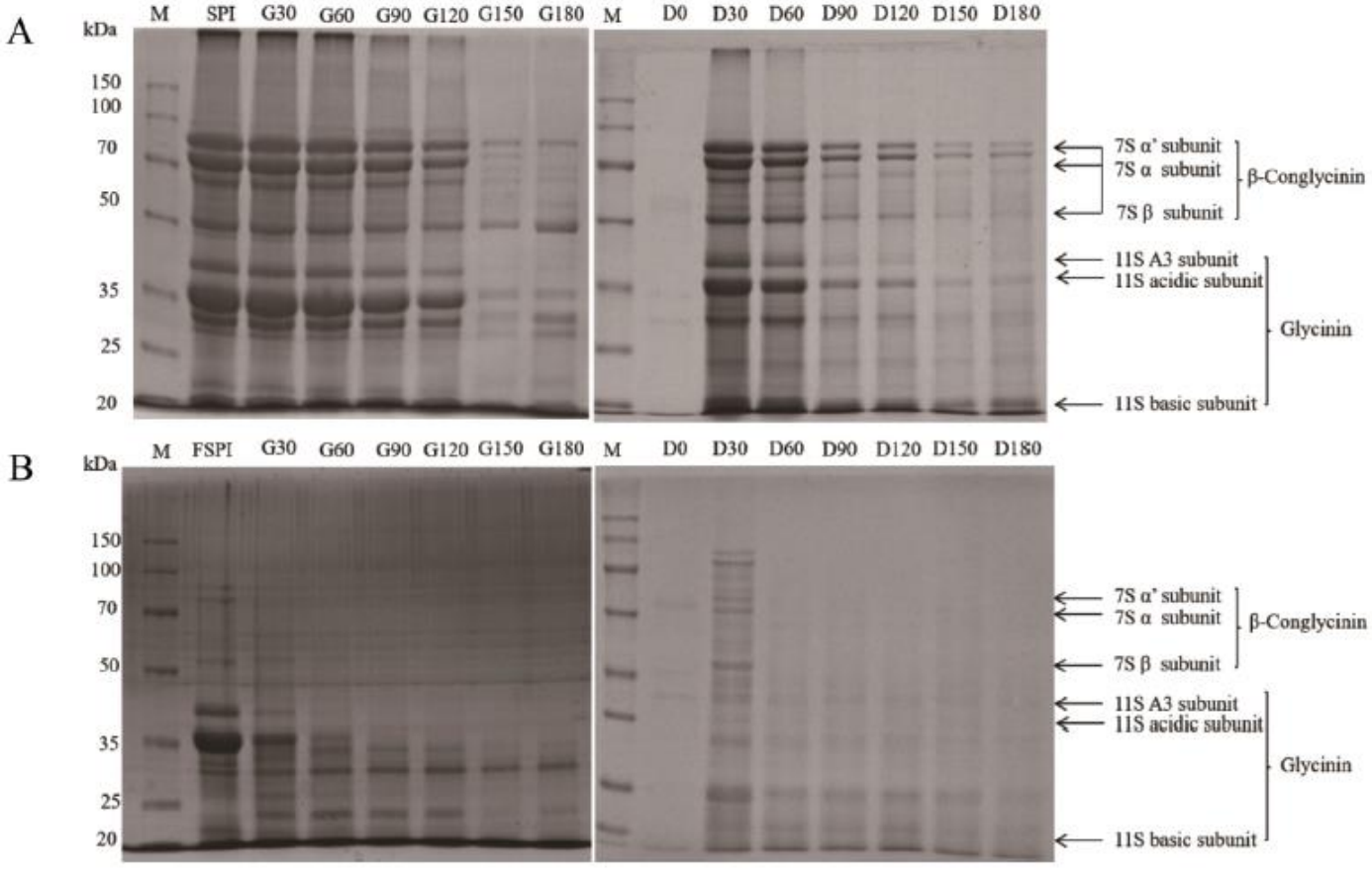


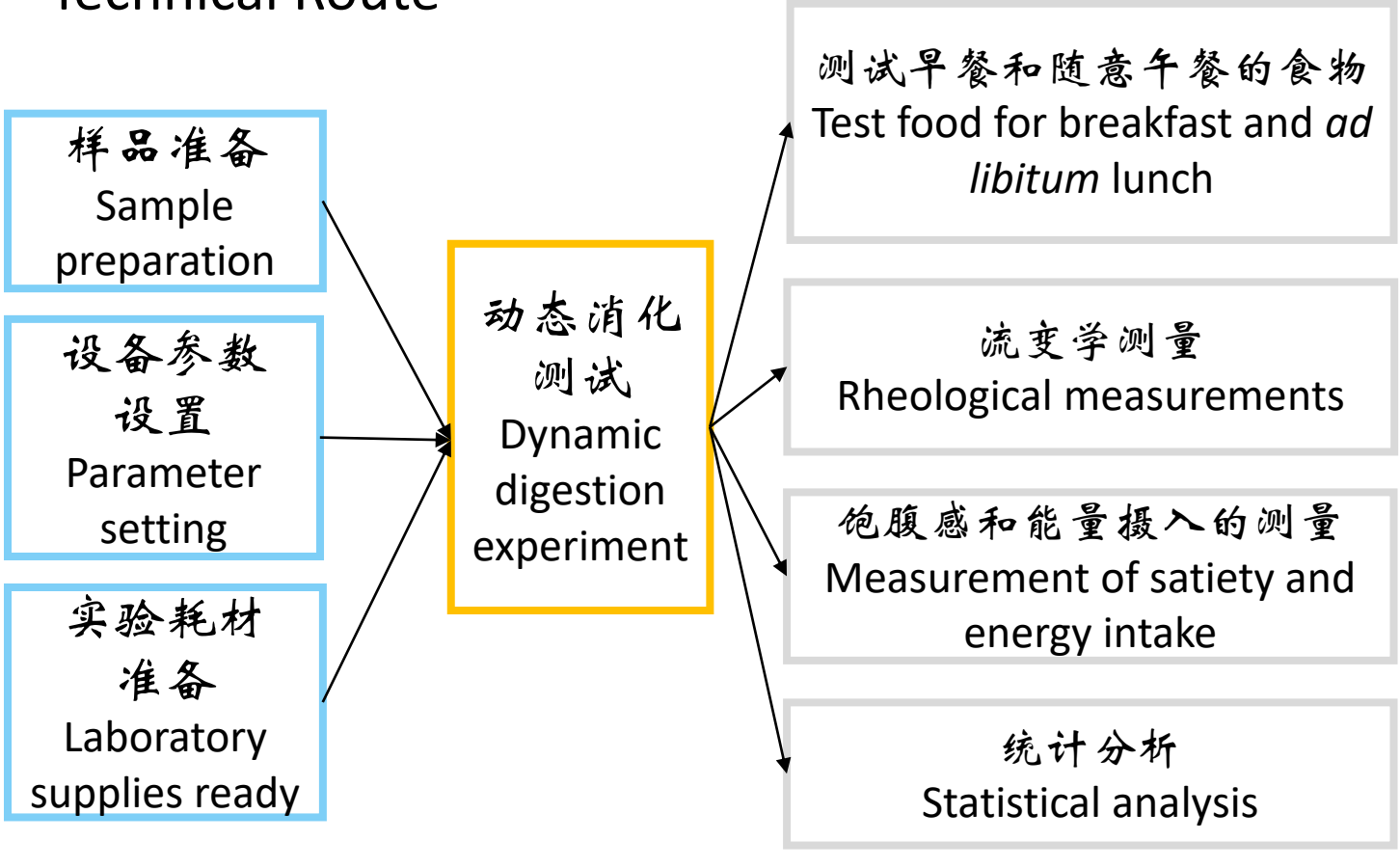
Fig. 5 SDS-PAGE profiles of gastric and duodenal digestates. (A) SPI and (B) FSPI. M: molecular weight marker; G30, G60, G90, G120, G150, and G180 represent gastric digestion at 30, 60, 90, 120, 150, and 180 min, respectively; D30, D60, D90, D120, D150, and D180 represent gastric duodenal digestion at 30, 60, 90, 120, 150, and 180 min, respectively. Subunits of β-conglycinin (7S globulin) and glycinin (11S globulin) are indicated by arrows.

案例四
Case Four

研究领域 Research Areas	营养餐 Nutritious meals
关键词 Key Words	仿生胃消化系统；魔芋葡甘露聚糖 *in vitro* human digestion system; konjac glucomannan

Longchen Shang, Yi Wang, Yanyan Ren, Tingyang Ai, Peiyuan Zhou, Ling Hu, Ling Wang, Jing Li, Bin Li. In vitro gastric emptying characteristics of konjac glucomannan with different viscosity and its effects on appetite regulation. Food & Function, 2020, 11, 7596-7610.

技术路线 »»
Technical Route



案例四
Case Four

结果展示 »»
Result display

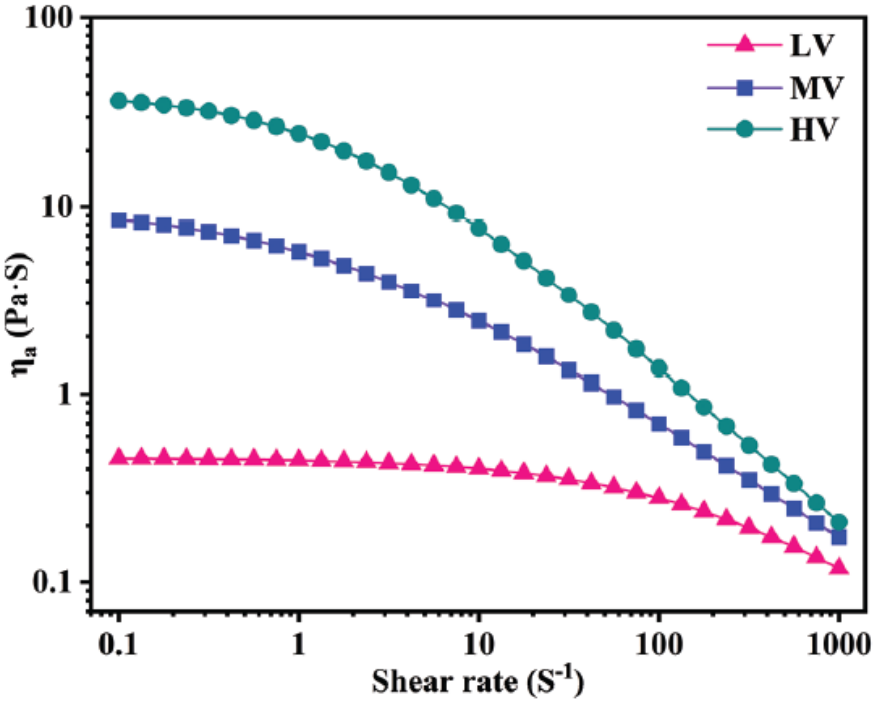


Fig. 1 Steady shear flow behavior of the KGM drink with different viscosities.

Table 1 The rheological properties of the test breakfast

Samples	η_o (Pa s)	$\dot{\gamma}_c$ (s^{-1})	n	R^2	η_{50} (Pa s)
LV	0.459	200.000	0.360	0.9998	0.298
MV	7.896	3.378	0.319	0.9996	1.567
HV	40.031	1.755	0.172	0.9999	3.257

案例四
Case Four

结果展示 »»
Result display

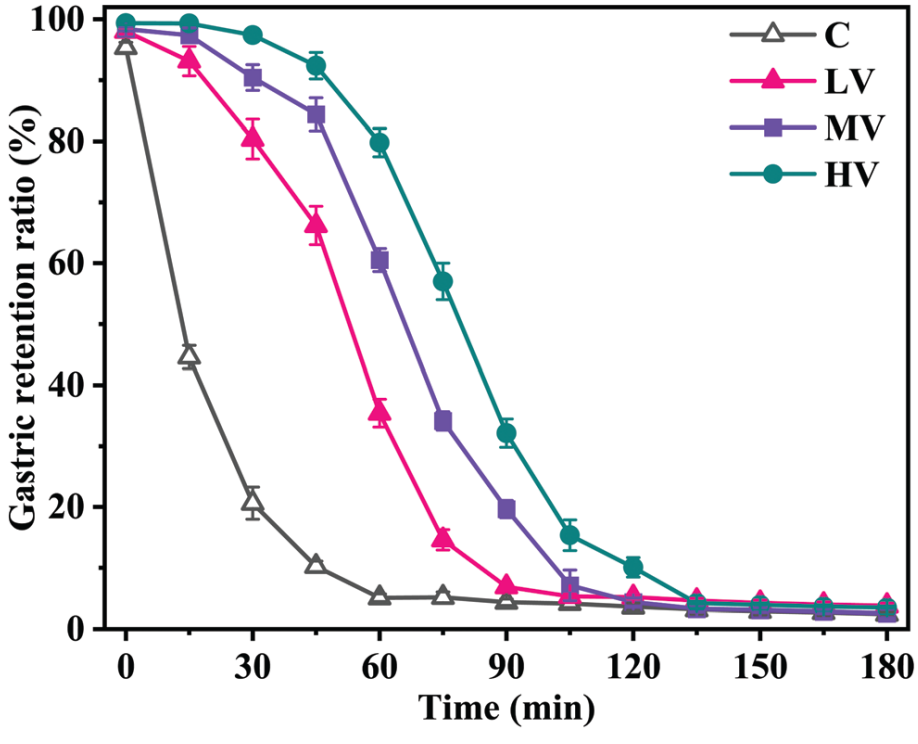


Fig. 2 Gastric retention of the test breakfast obtained from the DHS-IV.

Table 2 Modified Elashoff's power exponential model parameters of the gastric emptying data obtained from the DHS-IV

Meal	k	β	$t_{1/2}$	t_{lag}	r
C	0.0483 ± 0.0029	0.89 ± 0.05	12.7 ± 0.8	—	0.996
LV	0.0466 ± 0.0023	6.93 ± 1.57	50.2 ± 2.1	41.2 ± 2.7	0.990
MV	0.0463 ± 0.0008	13.70 ± 1.57	64.9 ± 1.6	56.4 ± 1.8	0.993
HV	0.0454 ± 0.0003	23.41 ± 2.29	77.7 ± 2.0	69.4 ± 2.0	0.998

Model parameters of the *in vitro* gastric retention data expressed as means ± standard deviations are obtained from triplicate gastric digestion tests in the new DIVHS.

案例四
Case Four

结果展示 »»
Result display

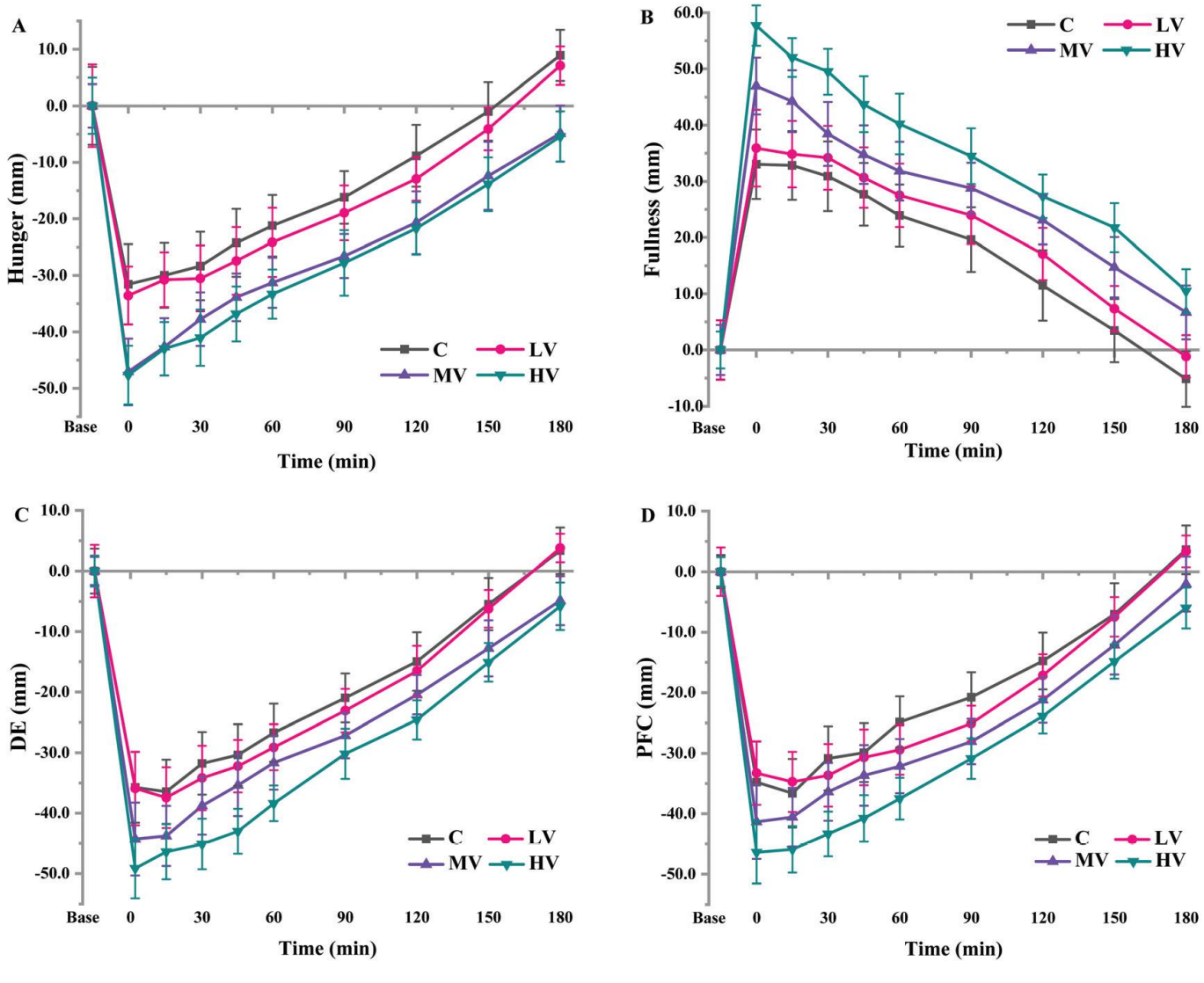
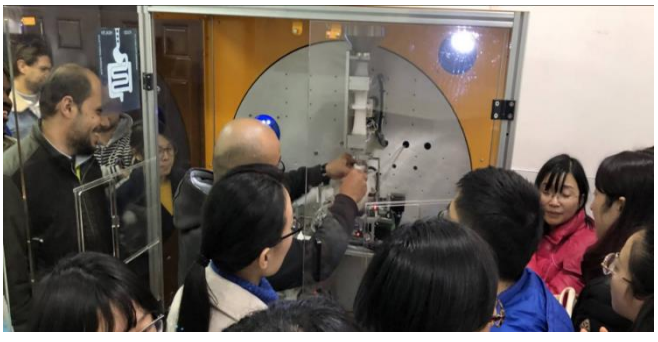
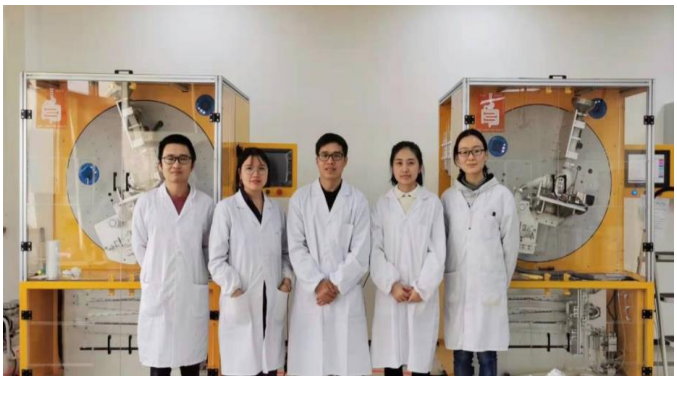
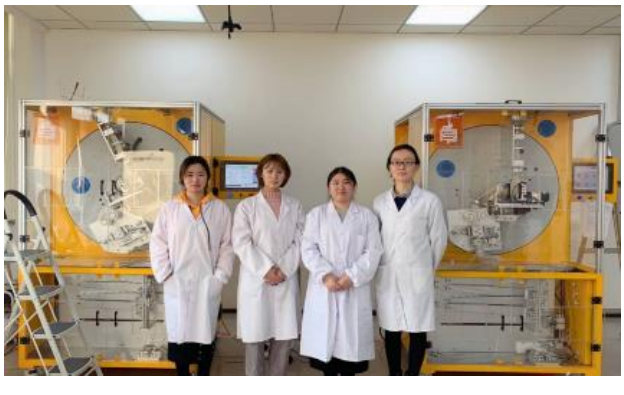


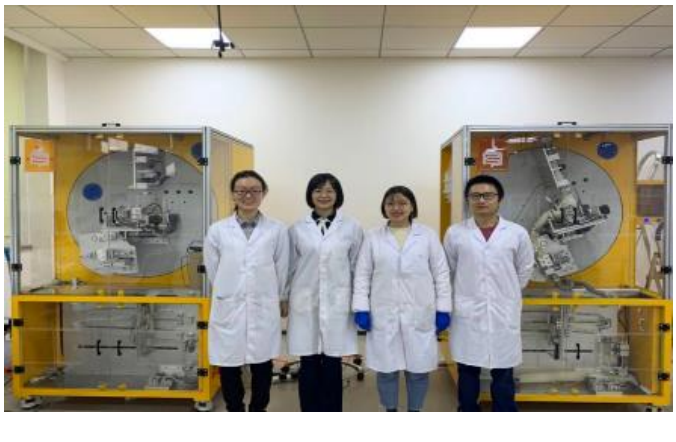
Fig. 4 Visual analogue scale scores of hunger (A), fullness (B), DE (C), and PFC (D) rated from the baseline through 180 min after the consumption of the test breakfast.

培训现场
Training site









已发表文章
Published papers

1. 1. Yafang Shang, Junhao Miao, Jia Zeng, Tianhua Zhang, Ruiming Zhang, Bingyan Zhang, Chao Wang, Yilong Ma, Xiangli Niu, Xiaolong N, Zhaojun Wei*, Evaluation of digestibility differences for apple polyphenolics using in vitro elderly and adult digestion models. Food Chemistry. 2022, 390, 133154.
2. Qianyu Ye, Fangzi Ge, Yong Wang, Peng Wu, Xiao Dong Chen*, Cordelia Selomulya *.Digestion of curcumin-fortified yogurt in short/long gastric residence times using a near-real dynamic in vitro human stomach. Food Chemistry. 2022, 372, 131327.
3. Shahid Iqbal, Ping Zhang, Peng Wu*, Quanyi Yin, Khemayanto Hidayat, Xiao Dong Chen**.Modulation of viscosity, microstructure and lipolysis of W/O emulsions by cellulose ethers during in vitro digestion in the dynamic and semi-dynamic gastrointestinal models. Food Hydrocolloids. 2022, 128 , 107584.
4. Junyan Wang, Peng Wu*, Jingjing Wang, Juan Wang, Biao Gu, Fangzi Ge, Xiao Dong Chen*.In vitro gastric digestion and emptying of cooked white and brown rice
5. using a dynamic human stomach system. Food Structure. 2022, 31, 100245.
6. Liang Li, Cuomu Baima, Jingyu Jiang, Zhendong Liu**, Jingjing Wang, Xiao Dong Chen, Peng Wu*. In vitro gastric digestion and emptying of tsampa under simulated elderly and young adult digestive conditions using a dynamic stomach system. Journal of Food Engineering. 2022, 327,111054.
7. Thitima Kuljarachanan, Nan Fu*, Naphaporn Chiewchan***, Sakamon Devahastin b,c,Xiao Dong Chen**.In vitro digestion using dynamic rat stomach-duodenum model as an alternative means to assess bioaccessibility of glucosinolates in dietary fiber powder from cabbage. LWT. 2021,151,112243.
8. Liding Chen, Jianqiu Chen, Jiahuan Li, Jiacheng Xie, Mingming Yu, Mengling Zhou, Meijuan Xi, Shujing Sun*. Physicochemical properties and in vitro digestion behavior of a new bioactive Tremella fuciformis gum. International Journal of Biological Macromolecules. 2022, 207, 611-621.
9. Zhen Peng, Peng Wu,* Jingjing Wang, Didier Dupont, Oliva Menard, Romain Jeantet, Xiao Dong Chen*.Achieving realistic gastric emptying curve in an advanced dynamic in vitro human digestion system: experiences with cheese - a difficult to empty material. *Food & Function*. 2021, DOI: 10.1039/D0FO03364B.
10. WU Peng, WANG Juan, WANG Jingjing, CHEN Xiaodong, Szeto Ignatius Man-Yau, DUAN Sufang. Evaluation of probiotics viability in fermented milk based on a biomimetic gastrointestinal model. *Food and Fermentation Industries*. 2020, DOI:10.13995/j.cnki.11-1802/ts.026269. 伍鹏，王娟，王晶晶，陈晓东，司徒文佑，段素芳.基于仿生胃肠道模型的发酵乳中益生菌存活率评价.*食品与发酵工业*,2020,DOI:10.13995/j.cnki.11-1802/ts.026269.
11. Wei Wu, Jiangtao Qiao, Xingying Xiao, Lingjie Kong, Jie Dong,* Hongcheng Zhang,*. In Vitro and In Vivo Digestion Comparison of Bee Pollen with or without Wall-disruption. *Journal of the science of food and agriculture*. 2020, DOI 10.1002/jsfa.10902.
12. Jiayi Chen, Qiming Chen, Chuanqi Xie, Waheed Ahmad, Lihua Jiang, Liming Zhao*. Effects of simulated gastric and intestinal digestion on chitooligosaccharides in two in vitro models. *International Journal of Food Science and Technology*. 2020, 55, 1881–1890.
13. Jin Huang, Zhen Liu, Xin Rui, Lamia L'Hocine, Qiuqin Zhang, Wei Li and Mingsheng Dong . Assessment of the effect of lactic acid fermentation on the gastroduodenal digestibility and immunoglobulin E binding capacity of soy proteins via an in vitro dynamic gastrointestinal digestion model. *Food & Function*, 2020, DOI: 10.1039/d0fo02023k.
14. Ziyu Zhang, Yumeng Fu, Qi Liu, Benjamin K. Simpson, Elham Azarpazhooh, Mingsheng Dong, Xin Rui*. Effect of lactic fermentation on soy protein digestive pattern assessed by an in vitro dynamic gastrointestinal digestion model and the influence on human faecal microbiota. *Journal of the science of food and agriculture*. 2020, DOI :10.1002/jsfa.10694.

已发表文章
Published papers

15. Longchen Shang, Yi Wang, Yanyan Ren, Tingyang Ai, Peiyuan Zhou,Ling Hu, Ling Wang, Jing Lia, Bin Li *.In vitro gastric emptying characteristics of konjac glucomannan with different viscosity and its effects on appetite regulation. *Food & Function*, 2020, 11, 7596.
16. Xiaojie Yu, Shanshan Tu, Yanhua Li, Abu ElGasim A. Yagoub, Haile Ma, Cunshan Zhou*. Effects of single- and tri-frequency ultrasound on self-assembly and characterizations of bionic dynamic rat stomach digestion of pepsin-soluble collagen from chicken leg skin. Food Research International. 2020, 137:109710.
17. Jingjing Wang, Peng Wu, Minghui Liu, Zhenkai Liao, Yong Wang, Zhizhong Dong and Xiao Dong Chen. An advanced near real dynamic in vitro human stomach system to study gastric digestion and emptying of beef stew and cooked rice. Food & Function, 2019, DOI: 10.1039/c8fo02586j.
18. Dongjie Liu, Sushil Dhital, Peng Wu, Xiao-Dong Chen, Michael J. Gidley*. In Vitro Digestion of Apple Tissue Using a Dynamic Stomach Model: Grinding and Crushing Effects on Polyphenol Bioaccessibility. Journal of agriculture and food chemistry. 2019, DOI: 10.1021/acs.jafc.9b05649.
19. Shuting Qing, Qiuqin Zhang, Wei Li, Elham Azarpazhooh, Benjamin K. Simpson, Xin Rui*. Effect of different satiety levels on the fate of soymilk protein in gastrointestinal digestion and antigenicity assessed by an in vitro dynamic gastrointestinal model. Food & Function, 2019, DOI: DOI: 10.1039/C9FO01965K.
20. Thitima Kuljarachanan, Nan Fu, Naphaporn Chiewchan*, Sakamon Devahastin, Xiao Dong Chen*.Evolutions of important glucosinolates in three common Brassica vegetables during processing into vegetable powder and during in vitro gastric digestion. Food & Function, 2019, DOI: 10.1039/C9FO00811J.
21. Zebin Guo, Beibei Zhao, Liding Chen, Baodong Zheng*. Physicochemical Properties and Digestion of Lotus Seed Starch under High-Pressure Homogenization. Nutrients. 2019, 11, 371, Doi:10.3390/nu11020371.
22. Yuan Feng, Xiaolong Wang, Zhen Ma, Tian Ren, Xiaoping Li, Xinzhong Hu*. Effect of processing on the in vitro digestion characteristics of oat products by using a dynamic rat stomach-duodenum model. *Journal of Functional Foods.* 2019,61:103277.
23. Zebin Guo, Beibei Zhao, Jie Chen, Liding Chen, Baodong Zheng*. Insight into the characterization and digestion of lotus seed starch-tea polyphenol complexes prepared under high hydrostatic pressure. *Food Chemistry*. 2019,297:124992.
24. Beibei Zhao, Bailong Wang, Baodong Zheng*, Liding Chen, Zebin Guo*. Effects and mechanism of high-pressure homogenization on the characterization and digestion behavior of lotus seed starch–green tea polyphenol complexes. *Journal of Functional Foods*. 2019,57:173-181.
25. Beibei Zhao, Siwei Sun, Hong Lin, Liding Chen, Si Qin, Weiguo Wu, Baodong Zheng*, Zebin Guo*.Physicochemical properties and digestion of the lotus seed starch-green tea polyphenol complex under ultrasound-microwave synergistic interaction. *Ultrasonics – Sonochemistry*. 2019, 52:50–61.
26. Xiaoai Zhang, Zhenkai Liao, Peng Wu*, Liding Chen*, Xiao Dong Chen*.Effects of the gastric juice injection pattern and contraction frequency on the digestibility of casein powder suspensions in an in vitro dynamic rat stomach made with a 3D printed model. *Food Research International*. 2018, 106:495–502.
27. Patsaporn Pongmalai, Nan Fu*, Somchart Soponronnarit, Naphaporn Chiewchan, Sakamon Devahastin*, Xiao Dong Chen. Microwave pretreatment enhances the formation of cabbage sulforaphane and its bioaccessibility as shown by a novel dynamic soft rat stomach model. *Journal of Functional Foods.* 2018, 43:186–195.

已发表文章
Published papers

27. Rewati R. Bhattarai, Sushil Dhital, Peng Wu, Xiao Dong Chen, Michael J. Gidley*. Digestion of isolated legume cells in a stomach-duodenum model: three mechanisms limit starch and protein hydrolysis. Food & Function, 2017, 8, 2573-2582.
28. Peng Wu, Rewati R. Bhattarai, Sushil Dhital, Renpan Deng, Xiao Dong Chen*, Michael J. Gidley*. In vitro digestion of pectin- and mango-enriched diets using adynamic rat stomach-duodenum model. Journal of Food Engineering. 2017, 202:65-78.
29. Peng Wu, Zhenkai Liao, Tingyu Luo, Liding Chen*, Xiao Dong Chen*. Enhancement of Digestibility of Casein Powder and Raw Rice Particles in an Improved Dynamic Rat Stomach Model Through an Additional Rolling Mechanism. Journal of Food Science. 2017, DOI: 10.1111/1750-3841.13683.
30. Peng Wu, Renpan Deng, Xuee Wu, Yong Wang, Zhizhong Dong, Sushil Dhital*, Xiao Dong Chen*. In vitro gastric digestion of cooked white and brown rice using a dynamic rat stomach model. Food Chemistry. 2017, 237: 1065–1072.
31. Liding Chen, Yufen Xu, Tingting Fan, Zhenkai Liao, Peng Wu, Xuee Wu, Xiao Dong Chen*. Gastric emptying and morphology of a 'near real' in vitro human stomach model (RD-IV-HSM). Journal of Food Engineering. 2016, 183:1-8.
32. Peng Wu, Liding Chen, Xuee Wu*, Xiao Dong Chen*. Digestive behaviours of large raw rice particles in vivo and in vitro rat stomach systems. Journal of Food Engineering. 2014, 142:170–178.
33. Liding Chen, Xuee Wu, Xiao Dong Chen*. Comparison between the digestive behaviors of a new in vitro rat soft stomach model with that of the in vivo experimentation on living rats – Motility and morphological influences. Journal of Food Engineering. 2013, 117:183–192.
34. Liding Chen, Amanthi Jayemanne, Xiao Dong Chen*. Venturing into In Vitro Physiological Upper GI System Focusing on the Motility Effect Provided by a Mechanised Rat Stomach Model. Food Digestion, 2013, 4:36-48.

持续更新中

合作单位
Cooperation Unit

持续更新中

Xiao Dong Pro-Health
Smart Digestion

晓东宜健 ● 智能消化

晓东宜健协助科学家挑战传统理念、开拓健康领域前沿！

Embracing Challenges - Shaping Our Healthy Life

微信扫一扫，关注我们吧

晓东宜健（苏州）仪器设备有限公司
Xiao Dong Pro-health (Suzhou) Instrumentation Co Ltd
地址： 苏州市相城区安民路6号
Add: No. 6 Anmin Road, Xiangcheng Zone, Suzhou city, Jiangsu, China
电话： +86-0512-85553796
Email: xd_prohealth@sina.com；
xiaolannuo@163.com
Web: www.smartdongest.com