



ISSN 1004-8685  
CN 41-1192/R

# 中国卫生检验杂志

ZHONGGUO WEISHENG JIANYAN ZAZHI

2016年3月 第26卷 第5期

Mar. 2016 Vol. 26 No. 5

国家卫生和计划生育委员会主管  
中华预防医学会主办

CHINESE  
JOURNAL OF HEALTH  
LABORATORY TECHNOLOGY

CJ  
HLT

中国科技论文统计源期刊(中国科技核心期刊)

RCCSE 中国核心学术期刊

中国生物医学源期刊

美国化学文摘(CA)源期刊

中国学术期刊综合评价数据库源期刊

5

2016

ISSN 1004-8685



9 771004 868163

中华预防医学会系列杂志  
SERIAL JOURNAL OF CHINESE PREVENTIVE MEDICINE ASSOCIATION

# 中国卫生检验杂志

ZHONGGUO WEISHENG JIANYAN ZAZHI

半月刊 1991 年创刊 第 26 卷 第 5 期 2016 年 3 月 10 日出版

## 主管

中华人民共和国国家卫生和计划生育委员会  
100044, 北京市西城区西直门外南路 1 号

## 主办

中华预防医学会  
100021, 北京市朝阳区劲松东口华泰饭店

## 社长总编

张绍武

## 副社长

张甜 姜友珍

## 副总编

郁庆福 李桂英 张克荣

## 编辑部主任

杨峰

## 编辑

中国卫生检验杂志编委会

## 出版

中国卫生检验杂志社  
450003 郑州市经一路 12 号 2288 信箱

## 编辑部电话

0371 - 65978342  
0371 - 65968289 (传真)

## 广告部电话

0371 - 65998851  
15538110112

## 出版日期

2016 年 3 月 10 日

## 发行

国内发行: 北京市邮政局  
邮发代号: 80 - 152  
国外发行: 中国国际图书贸易总公司  
(北京 399 信箱)  
国外发行代号: M5752

## 中国标准连续出版物号

ISSN 1004 - 8685  
CN 41 - 1192/R

## 广告经营许可证号

4100004000124

2016 年版权归中国卫生检验杂志社所有

## 定价

每期 21.50 元

## 目 次

### 论 著

- 限制性抗原亲和力与 BED 捕获酶免法用于 HIV - 1 新发感染检测的比较研究 ..... 夏燕, 潘晓红, 徐云, 等 (609)

- 不同方法分离牦牛粪便中沙门菌的比较 ..... 高瑞红, 李凤娟, 张晓华, 等 (613)

- 多种血液指标在冠心病患者临床检测中的应用价值 ..... 李红卫, 黄玉凤, 王新芳, 等 (616)

- QuEChERS - 气相色谱法同时测定果蔬中 12 种有机氯和拟除虫菊酯类农药残留 ..... 李芳, 王兴磊, 粟有志, 等 (619)

### 化学测定方法

- 固相萃取 - 气相色谱 - 质谱法测定农田土壤中的五氯酚 ..... 朱建民, 张学, 彭立核, 等 (622)

- 电感耦合等离子体质谱法与石墨炉原子吸收法测定尿中铊含量的比较 ..... 姜枫, 蒋莹, 王军明 (625)

- 碳纳米管修饰电极安培检测器离子色谱法测定儿茶酚胺类化合物 ..... 曾文芳, 王小芳, 缪露, 等 (628)

- 气相色谱 - 质谱法测定葱中的 41 种农药残留 ..... 高美佳, 李晔, 蔡亦军, 等 (631)

**本刊编委** (排名按笔画排列)

丁家华 仓公敖·方赤光 王 哲  
王大宁 王志玉 王京宇 王栩东  
毋福海 冯晓燕 叶能权 毕永毅  
刘秀梅 刘殿武 吕昌银 邱建城  
任一平 孙长颤 孙成均 许春向  
陈守建 何建国 何渐生 何晓青  
李 蓉 李 磊 李晓虹 宋宏彬  
吴清平 杨 元 张 曦 张贺秋  
邹学贤 姜庆五 赵 卓 赵雁林  
高永清 贾珍珍 栗文元 凌文华  
栾 燕 徐东群 曹 佳 曹润武  
晁福寰 崔 巍 常风启 黄国伟  
康 辉 康维钧 韩玉霞 曾现伟  
窦志勇 濡 萍 阎 飚 廖百森  
裴少军 裴晓方 谭晓东 熊 英  
潘 慧 冀元棠

**Editorial Board Member**

DING Jia - hua, CANG Gong - ao, FANG Chi - guang, WANG Zhe, WANG Da - ning, WANG Zhi - yu, WANG Jing - yu, WANG Xu - dong, WU Fu - hai, FENG Xiao - yan, YE Neng - quan, BI Yong - yi, LIU Xiu - mei, LIU Dian - wu, LV Chang - yin, QI Jian - cheng, REN Yi - ping, SUN Chang - hao, SUN Cheng - jun, XU Chun - xiang, CHEN Shou - jian, HE Jian - guo, HE Zhe - sheng, HE Xiao - qing, LI Rong, LI Lei, LI Xiao - hong, SONG Hong - bin, WU Qing - ping, YANG Yuan, ZHANG Xi, ZHANG He - qiu, ZOU Xue - xian, JIANG Qing - wu, ZHAO Zhuo, ZHAO Yan - lin, GAO Yong - qing, JIA Zhen - zhen, LI Wen - yuan, LING Wen - hua, LUAN Yan, XU Dong - qun, CAO Jia, CAO Run - wu, CHAO Fu - huan, CUI Wei, CHANG Feng - qi, HUANG Guo - wei, KANG Hui, KANG Wei - jun, HAN Yu - xia, ZENG Xian - wei, DOU Zhi - yong, PU Ping, KAN Biao, LIAO Bai - sen, PEI Shao - jun, PEI Xiao - fang, TAN Xiao - dong, XIONG Ying, PAN Hui, JI Yuan - tang

**网 址**

www.zgwsjy.cn

**投稿电子信箱**

wsjyzz@126.com

**印 刷**

鑫宏源印刷包装有限责任公司

**来稿咨询电话**

010 - 84030401

固相萃取 - 三重串联四级杆气相色谱 - 质谱联用法测定蔬菜中 57 种农

药残留 ..... 鹿尘, 张正尧, 孙翠霞 (636)

原子吸收光谱法测定广州市市售粮食中的 9 种金属元素 .....

..... 段夏菲, 凌东辉, 李兰芳, 等 (640)

电感耦合等离子体质谱法测定水处理剂聚合氯化铝中的杂质元素 .....

..... 蒋慧, 黎林, 蒙华毅 (644)

**实验研究**

酪氨酸磷酸酶体外诊断试剂的开发 .....

..... 王亚棋, 黎隽, 刘立科, 等 (647)

应用大型蚤评价铜内胆中饮用水的急性毒性 .....

..... 刘锋平, 张续, 潘力军 (650)

血管紧张素转化酶抑制剂通过抗氧化应激对脑梗死大鼠的影响 .....

..... 张云书 (653)

饮料中甜蜜素考核样的制备及实验室检测能力评价 .....

..... 宁霄, 何欢, 刘雅丹, 等 (656)

载脂蛋白 E 基因多态性与慢性乙型肝炎易感性及病情进展的相关性研究

..... 沈月爽, 李萌, 王卫锋 (662)

**食品与药品检验**

温州市龙湾区食品中金黄色葡萄球菌及沙门菌的检测分析 .....

..... 张素燕, 姜娴, 王晓红, 等 (665)

反相高效液相色谱法测定蒲地蓝消炎口服液中绿原酸和咖啡酸的含量

..... 张学东, 张宜欣, 刘永红, 等 (668)

2011 年 - 2014 年泰安市婴幼儿食品中阪崎肠杆菌的检测及耐药性和毒

力基因研究 ..... 郑金华, 张新峰, 陆娟娟, 等 (670)

## 微生物检测方法

- 实时荧光 PCR 方法分型检测细菌 16S rRNA 基因的临床应用 ..... 潘克女,张永乐,徐爱芳,等 (673)  
致泻性大肠埃希菌基质辅助激光解析飞行质谱研究 ..... 屠博文,徐岩,熊吉滨,等 (676)  
实时荧光 RT - PCR 法与常规 RT - PCR 法检测手足口病病原体的比较 ..... 冀林立 (680)  
结核分枝杆菌/利福平耐药实时荧光定量核酸扩增检测技术在肺结核快速诊断中的应用价值 .....  
..... 曾松芳,郭美丽,赵珊珊,等 (683)  
食品中霍乱弧菌的新型检测方法研究 ..... 黎明,周琛,阮佳,等 (686)

## 临床检验

- 不同产地甘草对 HepG2.2.15 细胞表达乙型肝炎表面抗原和乙型肝炎 e 抗原的影响 .....  
..... 蔡旭玲,邹志辉,黄晓晖,等 (689)  
血清脂蛋白(a)和胱抑素 C 与 2 型糖尿病及微血管并发症的临床研究 ..... 李静,彭晶,袁瑞丽,等 (693)  
登革热病毒感染后 NS1 抗原检测的应用评价 ..... 郭鹏娟,詹希美,吴德,等 (697)  
2 型糖尿病患者嘌呤能受体水平检测及其与 C - 反应蛋白的相关性研究 ..... 黄建芳,李小永,黄全海,等 (700)  
晚期血吸虫病患者外周血中 Vα24 自然杀伤 T 细胞水平观察 ..... 彭芝梅,蔡爱玲,周明莉 (703)  
血清同型半胱氨酸和血脂代谢水平与冠状动脉病变的相关性分析 ..... 马锦洪,史伟峰,于宗良,等 (706)  
糖尿病患者癌胚抗原水平与其特异性受体的相关性研究 ..... 付水,陶利花,庄国华,等 (709)

## 监测分析

- 2012 年 - 2014 年厦门口岸卫生微生物检测结果分析 ..... 郑燕平 (712)  
西安地区门诊及住院病例中副流感病毒流行特征分析 ..... 张蕾,史伟,许晶,等 (715)  
上海市浦东新区大气 PM2.5 中重金属污染现状研究 ..... 胡燕,杨敏娟,孙乔 (718)  
江西省大米中砷形态的监测分析 ..... 谭洪涛,周鸿,李娟 (722)  
2012 年 - 2014 年桐乡市常见食源性疾病影响因素分析 ..... 张晓怡,钱群花,方惠千,等 (724)  
2010 年 - 2014 年烟台流感病原学监测分析 ..... 刘娟,宫连凤,孙振璐,等 (727)  
2014 年滨州市肉及肉制品卫生监测结果分析 ..... 边瑞岩,刘风仙 (730)

张家港市食源性疾病哨点医院监测结果分析 ..... 柳丽江,朱芳,樊飞,等 (733)

西安市 2010 年 - 2014 年流感监测结果分析 ..... 李焱,吴瑞,黄银娟,等 (736)

## 调查报告

石嘴山地区麻疹疫情分析及预防控制策略的研究 ..... 李莺,马嘉子 (740)

水产品中稀土元素的测定与含量调查 ..... 龚立科,王姝婷,薛鸣,等 (742)

舟山地区冰鲜海产品中常见食源性致病菌污染状况调查 ..... 胡兴娟,沈飚,周秀锦,等 (746)

日照市部分蔬菜中铅、镉、铬、汞、砷含量及健康风险评价 ..... 王海萍,秦鹏,陈建文 (748)

## 细菌耐药性研究

新确认 HIV - 1 感染者耐药相关基因位点突变研究 ..... 刘洁,焦洋,李丽,等 (753)

## 教学与实验室管理

石景山区疾病预防控制中心 2013 年 - 2014 年检测样品分类分析 ..... 李小利 (756)

## 经验交流

北京市顺义区 2014 年涉苯系物企业监测情况现状分析 ..... 周国伟,何丽华,胡在方,等 (758)

责任编辑 白云

责任校对 冯芳

英文编辑 张蒙

# CHINESE JOURNAL OF HEALTH LABORATORY TECHNOLOGY

Semimonthly Established in 1991, Volume 26 Number 5 March 10, 2016

## Managed by

National Health and Family Planning Commission  
of the People's Republic of China  
No. 1, Xizhimen Wainan Road, Xicheng District, Beijing, 100044

## Sponsored by

Chinese Preventive Medicine Association  
Hua Thai Hotel, East Exit of Jinsong Road, Chaoyang District, Beijing, 100021

## Editor in Chief

ZHANG Shao - wu

## Deputy Chairman

ZHANG Tian, JIANG You - zhen

## Associate Editor in Chief

YU Qing - fu, LI Gui - ying, ZHANG Ke - rong

## Director of Editorial Department

YANG Feng

## Edited by

Editorial Board of Chinese Journal of Health Laboratory Technology

## Published by

Editorial Department of Chinese Journal of Health Laboratory Technology  
Mailbox 2288, No. 12, Jingyi Road, Zhengzhou, 450003

## Editorial office telephone

0371 - 65978342  
0371 - 65968289 (Fax)

## Advertising department telephone

0371 - 65998851  
15538110112

## Publication Date

March 10, 2016

## Domestic Distributor

Beijing Post Bureau  
Code: 80 - 152

## Overseas Distributor

China International Book Trading Corporation  
(P. O. Box 399, Beijing, China)  
Code: M5752

## Website

[www.zgwsjy.cn](http://www.zgwsjy.cn)

## E-mail

[wsjyz@126.com](mailto:wsjyz@126.com)

## Standard Series Number

ISSN 1004 - 8685  
CN 41 - 1192/R

## Advertising Management License

4100004000124

Copyright 2016 by Editorial Department of  
Chinese Journal of Health Laboratory Technology

## Price

RMB ¥21.50

## CONTENTS IN BRIEF

### Original Articles

A comparative study on using limiting antigen avidity enzyme immunoassay and BED capture enzyme immunoassay for the detection of HIV - 1 new infection ..... XIA Yan, PAN Xiao - hong, XU Yun, et al (609)

Comparison of several separation methods of *Salmonella* from yak feces .....  
GAO Rui - hong, LI Feng - juan, ZHANG Xiao - hua, et al (613)

The clinical application value of many blood testing indicators for the detection of patients with coronary heart disease .....  
LI Hong - wei, HUANG Yu - feng, WANG Xin - sang, et al (616)

Simultaneous determination of 12 organochlorine pesticides and pyrethroid pesticides residues in fruits and vegetables by QuEChERS - gas chromatography .....  
LI Fang, WANG Xing - lei, SU You - zhi, et al (619)

### Chemical Detection Method

Determination of pentachlorophenol in soil by solid - phase extraction - gas chromatography - mass spectrometry .....  
ZHU Jian - min, ZHANG Xue, PENG Li - he, et al (622)

Comparison between inductively coupled plasma mass spectrometer and graphite furnace atomic absorption spectrometry on the determination of Tl content in urine ..... JIANG Feng, JIANG Ying, WANG Jun - ming (625)

Determination of catecholamines by electrochemical modified ion chromatography ..... ZENG Wen - fang, WANG Xiao - fang, MIAO Ling, et al (628)

Determination of 41 pesticide residues in shallot by gas chromatography - mass spectrometry ..... GAO Mei - jia, LI Ye, CAI Yi - jun, et al (631)

Determination of 57 kinds of residual pesticide in vegetables by solid - phase extraction - triple quadrupole gas chromatography - mass spectrometry .....  
LU Chen, ZHANG Zheng - yao, SUN Cui - xia (636)

**Determination of nine metallic elements in grain from markets in Guangzhou by atomic absorption spectrometry** .....  
..... DUAN Xia - fei, LING Dong - hui, LI Lan - fang, *et al* (640)

**Determination of impurity elements in poly aluminum chloride by inductively coupled plasma – mass spectrometry** .....  
..... JIANG Hui, LI Lin, MENG Hua - yi (644)

## **Experimental Study**

**Developing *in vitro* diagnostic reagents for protein tyrosine phosphatases** .....  
..... WANG Ya - qi, LI Jun, LIU Li - ke, *et al* (647)

**The detection of acute toxicity effect of the drinking water reserved in coppery tank with *Daphnia Magna*** .....  
..... LIU Feng - ping, ZHANG Xu, PAN Li - jun (650)

**Therapeutic effects of angiotensin converting enzyme inhibitors on cerebral infarction rats through fighting against oxidative stress** ..... ZHANG Yun - shu (653)

**Preparation of sodium N – cyclohexylsulfamate samples in drinks and study on proficiency testing for laboratory determination** .....  
..... NING Xiao, HE Huan, LIU Ya - dan, *et al* (656)

**Investigation on the association of apolipoprotein E gene polymorphism with susceptibility to chronic hepatitis B and progression of the disease** ..... SHEN Yue - shuang, LI Meng, WANG Wei - feng (662)

## **Food and Drug Inspection**

**Detection and analysis of *Staphylococcus aureus* and *Salmonella* in Longwan district of Wenzhou** .....  
..... ZHANG Su - yan, JIANG Xian, WANG Xiao - hong, *et al* (665)

**Determination of chlorogenic acid and caffeic acid in Pudilan antiphlogistic oral liquid with reversed – phase high performance liquid chromatography** ..... ZHANG Xue - dong, ZHANG Yi - xin, LIU Yong - hong, *et al* (668)

**Study on the detection, drug resistance and virulence gene of *Enterobacter sakazakii* in infants food of Tai' an from 2011 to 2014** .....  
..... ZHENG Jin - hua, ZHANG Xin - feng, LU Juan - juan, *et al* (670)

## **Microbe Detection Method**

**The application of typing with real – time PCR in the detection of 16S rRNA genes** .....  
..... PAN Ke - nv, ZHANG Yong - le, XU Ai - fang, *et al* (673)

**Research on MALDI – TOF MS for diarrheagenic *Escherichia coli*** ..... TU Bo - wen, XU Yan, XIONG Ji - bin, *et al* (676)

**Testing comparison for pathogen of hand – foot – mouth disease with real – time RT – PCR and conventional RT – PCR** .....  
..... JI Lin - li (680)

**The application value of Xpert MTB/RIF technology for rapid diagnosis of pulmonary tuberculosis** .....  
..... ZENG Song - fang, GUO Mei - li, ZHAO Shan - shan, *et al* (683)

- Research on a new method for the detection of *Vibrio cholerae* in high - risk sea foods** .....  
..... LI Ming, ZHOU Chen, RUAN Jia, et al (686)

## **Clinical Laboratory Test**

- Effect of different origin radix glycyrrhizae on HBsAg and HBeAg of HepG2. 2. 15 cells express** .....  
..... CAI Xu - ling, ZOU Zhi - hui, HUANG Xiao - hui, et al (689)
- Clinical study of serum lipoprotein(a) and cystatin C with type 2 diabetes mellitus and microvascular complications** .....  
..... LI Jing, PENG Jing, YUAN Rui - li, et al (693)
- Research on the evaluation of NS1 antigen assay after dengue virus infection** .....  
..... GUO Peng - juan, ZHAN Xi - mei, WU De, et al (697)
- Research on the correlation of P2X7 receptor levels with C - reactive protein in patients with type 2 diabetes** .....  
..... HUANG Jian - fang, LI Xiao - yong, HUANG Quan - hai, et al (700)

- Observation on Vα24 natural killer T cells level in peripheral blood in patients with advanced schistosomiasis** .....  
..... PENG Zhi - mei, CAI Ai - ling, ZHOU Ming - li (703)

- Research on the correlation of serum homocysteine and blood lipid metabolism level with coronary heart disease** .....  
..... MA Jin - hong, SHI Wei - feng, YU Zong - liang, et al (706)

- Research on the correlation of carcinoembryonic antigen levels with receptor of advanced glycation end products in patients with diabetes mellitus** ..... FU Shui, TAO Li - hua, ZHUANG Guo - hua, et al (709)

## **Monitoring and Analysis**

- Analysis of microbiological detection results of hygiene supervision in Xiamen ports from 2012 to 2014** .....  
..... ZHENG Yan - ping (712)

- Epidemiology study from outpatients and inpatients of parainfluenza virus in Xi 'an area** .....  
..... ZHANG Lei, SHI Wei, XU Jing, et al (715)

- Study of pollution status of heavy metals in PM2. 5 in Pudong of Shanghai** .... HU Yan, YANG Min - juan, SUN Qiao (718)

- Monitoring and analysis of arsenic speciation in rice in Jiangxi** ..... TAN Hong - tao, ZHOU Hong, LI Juan (722)

- Analysis of influencing factors for common foodborne diseases in Tongxiang during 2012 - 2014** .....  
..... ZHANG Xiao - yi, QIAN Qun - hua, FANG Hui - qian, et al (724)

- Surveillance and analysis of etiologic characteristics of influenza in Yantai from 2010 to 2014** .....  
..... LIU Juan, GONG Lian - feng, SUN Zhen - lu, et al (727)

- Analysis of hygienic surveillance results of meat and meat products in Binzhou in 2014** .....  
..... BIAN Rui - yan, LIU Feng - xian (730)

**Analysis of surveillance results of food borne diseases from sentinel hospitals in Zhangjiagang** .....  
..... LIU Li - jiang, ZHU Fang, FAN Fei, *et al* (733)

**Analysis of influenza virus surveillance results in Xi'an from 2010 to 2014** .....  
..... LI Yan, WU Rui, HUANG Yin - juan, *et al* (736)

## **Investigation Report**

**Research on the measles epidemic analysis and the strategy of prevention and control in Shizuishan area** .....  
..... LI Ying, MA Jia - zi (740)

**Determination and content survey of rare earth elements in aquatic products** .....  
..... GONG Li - ke, WANG Shu - ting, XUE Ming, *et al* (742)

**Investigation on the contamination of foodborne pathogenic bacteria in iced fresh seafoods in Zhoushan** .....  
..... HU Xing - juan, SHEN Biao, ZHOU Xiu - jin, *et al* (746)

**Contents of Pb, Cd, Cr, Hg, As and health risk assessment in some vegetables in Rizhao** .....  
..... WANG Hai - ping, QIN Peng, CHEN Jian - wen (748)

## **Bacterial Resistance Research**

**Research on the mutations of relevant drug resistance gene sites in newly confirmed HIV - 1 infectors** .....  
..... LIU Jie, JIAO Yang, LI Li, *et al* (753)

**Editor in Charge** BAI Yun

**Responsibility of Proofreading** FENG Fang

**English Editor** ZHANG Meng



# 出结果更快更准确

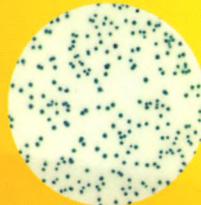
## 3M™ Petrifilm™ 快速菌落总数测试片

出结果仅需24小时

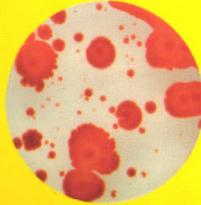
### 3M™ Petrifilm™ 快速菌落总数测试片的优势

- 快速出结果：出结果只需24小时（除奶粉）
- 方便判读：特有的技术可防止菌落蔓延
- 方便使用：在接种区的周围加有泡棉屏障，接种和压板更容易
- 食品种类应用的广泛性：几乎可以适用于所有食品种类
- 已证明的可靠性：和传统培养基方法等效
- 用途的广泛性：可用于空气，涂抹和表面接触的环境采样
- 节省劳动力：节省了大量的培养基配置的劳力
- 获得AOAC认证

和传统培养基方法比较更易判读



生乳中的菌落总数在  
3M™ Petrifilm™ 快速菌落总数测试片上  
24小时的形态



生乳中的菌落总数在传统培养基上  
48小时的形态