

·短篇论著·

岑溪市 2010~2011 年食源性致病菌监测结果分析

吕腾荣

摘要:目的 分析岑溪市食品致病菌污染状况及食源性疾病的发生。方法 2010~2011 年选择本市有代表性的农贸市场、食品超市和快餐店随机采集 10 个种类食品,按照国标方法进行菌落总数、大肠菌群、致病菌等项目的检测。结果 采集的 10 类食品共 146 份样品,总超标率为 29.45%,未检出致病菌。岑溪市 10 类食品均受到不同程度的微生物污染,主要是菌落总数和大肠菌群超标,超标率分别是 23.97%和 28.77%,超标食品主要为鲜榨果汁、其次是即食非发酵豆制品、凉拌菜及熟肉制品。结论 应采取相应的预防和控制措施,加强对各类食品的监督监测,防止食源性疾病的蔓延。

关键词:食品;食源性致病菌;食源性疾病;监测

中图分类号:R155.5 文献标识码:A 文章编号:1009-9727(2013)3-369-03

Results of monitoring of food-borne pathogenic bacteria in Cenxi in 2010~2011. LV Teng-rong. (Cenxi Municipal Center for Disease Control and Prevention, Cenxi 543200, Guangxi P. R. China)

Abstract: Objective To analyze the status of food-borne pathogen contamination and food-borne disease in Cenxi city. Methods There 146 food samples of 10 categories were collected from market places, food supermarkets and fast food restaurants in 2010 to 2012, and pathogens were detected and identified based on the national method. Results The total unqualified rate of 146 food samples were 29.45%, and no pathogens were detected. However, 10 categories of food were contaminated by different degree of microorganisms. The unqualified rate of total number of colony and coliform were 23.97% and 28.77%, respectively. The unqualified rate of the sequence from high to low were 84.21% in fresh fruit juice, 72.22% in low ready-to-eat non-fermented soybean, 50.00% in salad and 31.82% in cooked meat, respectively. Conclusions Measures be taken to prevent the occurrence of food-borne diseases.

Key words: Food; Food-borne pathogens; Foodborne diseases; Monitoring

随着食品生产规模的扩大和食品贸易国际化,食品安全问题已成为公众关注的焦点之一^[1]。为了解岑溪市食品污染物现状,全面掌握和分析岑溪市食品中主要污染物及有害因素的污染水平和趋势,确定危害因素的可能来源,及时发现食品安全隐患,为风险预警提供依据,同时评价食品生产经营各环节的污染控制水平与食品安全标准的执行情况和效力,为开展食品安全风险评估、制定食品安全标准和采取有针对性的控制措施提供科学依据。根据国家《食品安全行动计划》和《广西食品安全风险监测实施方案》的通知要求,岑溪市疾病预防控制中心开展了食源性致病菌监测工作。现将 2010~2011 年岑溪市食源性致病菌监测结果报告如下。

1 材料与方法

1.1 样品来源 根据岑溪市的实际情况,按照统一的方法,2010~2011 年选择有代表性的农贸市场、食品商店、食品超市、快餐店和小摊点采用随机抽样的方法采集 10 个种类的食品,共计 146 份样品,以无菌操作采样并及时送达实验室进行检测。

1.2 检测品种 共监测 10 类食品,分别是豆制品、

熟肉制品、米粉及盒饭、熟冻熟制米面制品、即食非发酵豆制品、糕点及饼干、婴幼儿配方奶及婴幼儿谷基辅助食品、鲜榨果汁、凉拌菜和生食动物水产品等。

1.3 检测项目 按照自治区食品安全风险监测实施方案的要求,同时结合岑溪市实际情况,检测项目包括菌落总数、金黄色葡萄球菌、沙门氏菌、志贺氏菌、单增李氏特菌、O157、霉菌、阪崎肠杆菌、副溶血性弧菌及蜡芽芽孢杆菌,生食动物水产品加检测空肠弯曲菌和肝吸虫。

1.4 检测方法和评价方法 检测方法按照卫生微生物学检验国家标准及全国食源性致病菌检验技术手册要求进行^[2],评价方法按 GB 2762-2005《食品中污染物限量》和国际食品法典委员会颁布的相关标准进行评价,检测项目中有 1 项以上不合者按不合格计。检出的阳性菌株及时送往自治区疾病预防控制中心鉴定保存。

2 结果

采集的 10 类食品共 146 份样品,有 43 份样品超标,总超标率达 29.45%,微生物指标中菌落总数和大肠菌群超标严重,菌落总数超标率达 23.97%,大肠菌

作者单位:岑溪市疾病预防控制中心 广西 岑溪 543200

作者简介:吕腾荣(1966~),男,广西岑溪市人,本科,主管技师,主要从事卫生检验与疾病控制工作。

表 1 10 类食品微生物项目检测情况

Table 1 Results of detection of microorganisms from 10 kinds of foods

样品名称	样品数	菌落总数 Total bacteria		大肠菌群 Escherichia Coli		致病菌	合计
Samples	No.detected	超标数	超标率(%)	超标数	超标率(%)	Pathogens	超标率(%)
		No.unqua- lified	Rate	No.unqua- Lified	Rate		Exceeding rate
熟肉制品 Cooked meat	22	6	27.27	7	31.82	未检出 Not-detected	7(31.82)
米粉及盒饭 Rice flour and stack	12	2	16.67	2	16.67	未检出 Not-detected	2(16.67)
速冻熟制米面制品 Iced rice/flour	16	1	6.25	1	6.25	未检出 Not-detected	1(6.25)
即食非发酵豆制品 Non-fermented soybean	18	6	33.33	13	72.22	未检出 Not-detected	13(72.22)
糕点及饼干 Cake/biscuit	13	1	7.69	1	7.69	未检出 Not-detected	1(7.69)
婴幼儿配方奶粉及谷基辅助食品	15	-	-	-	-	未检出 Not-detected	0
Infant formula/cereal-based complementary food							
鲜榨果汁 Fresh juice	19	16	84.21	15	78.94	未检出 Not-detected	16(84.21)
凉拌菜 Salad	6	3	50.00	3	50.00	未检出 Not-detected	3(50.00)
蛋制品 Egg product	12	-	-	-	-	未检出 Not-detected	0
生食动物水产品 Raw meat and seafood	13	-	-	-	-	未检出 Not-detected	0
合计 Total	146	35	23.97	42	28.77		43(29.45)

注:生食动物水产品致病菌检测 1、对虾肝吸虫未检出 2、鸡鸭肉空肠弯曲菌均未检出。Note Pathogens wasn't detected in raw seafood and raw meat p. g. liver fluke wasn't founded in shrimp and no campylobacter jejuni in chicken and duck.

群超标率达 28.77% ,均未检出致病菌。超标食品主要为鲜榨果汁、即食非发酵豆制品、凉拌菜及熟肉制品。结果见表 1。

3 讨论

民以食为天,食品安全问题直接关系到公众的身体健康和生命安全。食源性致病菌的监测很有必要^[3]。目前,由于全球性食品贸易的快速增长、饮食习惯的改变、食品加工方式的变化,使得新的食源性致病菌不断出现。当今世界许多国家都存在由微生物污染食品引起的食源性疾病的暴发。食源性疾病 60%是由细菌引起的。目前已知有多种病原菌引起,食源性疾病暴发,如弯曲杆菌、沙门氏菌、志贺氏菌、单增李氏杆菌、O157 H7 等^[4]。

从 2010~2011 年监测结果显示,岑溪市 10 类食品主要受到不同程度微生物的污染,所采集的 146 份样品中有 43 份样品超标,总超标率达 29.45%,微生物指标中菌落总数和大肠菌群超标严重,菌落总数超标率达 23.97%,大肠菌群超标率达 28.77%,均未检出致病菌。超标食品主要为鲜榨果汁,超标率达 84.21%,其次是即食非发酵豆制品、凉拌菜及熟肉制品,超标率依次为 72.22%、50.00%、31.82%;米粉盒饭超标率为 16.67%,其它几类食品的超标率较低。由于本地有生食的习惯,在生食动物水产品类中的对对虾和鸡鸭肉样品进行肝吸虫和空肠弯曲菌的检验,结果均未检出。

而造成鲜榨果汁、即食非发酵豆制品这些食品超标率高的原因可能与与生产车间的环境,工艺流程、原料的选用、储存条件、温度、所盛装的容器用具等消毒措施有关。不同种类的食品卫生微生物污染的

程度亦不相同,如包装密封消毒较彻底的食品等,不易受到二次污染,合格率也较高;另外食品本身营养丰富,水份含量适中,温度适宜,有利于微生物的繁殖,且有相当多的品种是在销售过程中时半敞开的,空气流动也是导致微生物污染的机会增加^[5]。必须严格加强食品卫生知识的宣传和卫生管理,采取相应的预防和控制措施,加强对各类食品的监督监测,防止食源性疾病的蔓延。我们的卫生监督部门要加大执法力度,切实履行在食品生产、加工、运输、存储及销售过程中的卫生监督和管理,以保障食品安全和消费者健康^[6]。

参考文献:

- [1] Zhang F, Monitoring of foodborne pathogens in commercial food products in Haikou City[J]. Chin Trop Medi, 2011, 12(10): 1270-1272(In Chinese)
(张帆,海口市 2011 年市售食品食源性致病菌检测分析[J]. 中国热带医学 2012, 12(10): 1270-1272)
- [2] GB/T 4789-2003, GB/T 4789-2008, GB4789-2010. Microbiological examination of food hygiene[S]. (In Chinese)
(GB/T 4789-2003, GB/T 4789-2008, GB4789-2010. 食品卫生微生物学检验[S].)
- [3] Cui XY, Chen F, Ma JF et al. Results of monitoring of food-borne pathogenic bacteria in Nantong City (2004-2008) [J]. Chin Trop Med 2010, 10(10): 1205-1206. (In Chinese)
(崔晓燕,陈峰,马俊峰,等.南通市食品中食源性致病菌监测结果分析[J]. 中国热带医学 2010, 10(10): 1205-1206)
- [4] Zhang J, Wang PR, Zhang HY et al. Progress on Molecular motor testing technology for food-borne pathogens [J]. Chin Pub Hlth, 2011, 10(27): 1252-1254. (In Chinese) (下转第 374 页)

- [8] MacGregor RR, Boyer JD, Ugen KE et al. First human trial of a DNA-based vaccine for treatment of human immunodeficiency virus type 1 infection safety and host response [J]. J Infect Dis, 1998, 178: 92-100.
- [9] Ewert KK, Ahmad A, Boussein NF et al. Evans HM and Safinya CR, Non-viral gene delivery with cationic liposome-DNA complexes[J]. Methods Mol Biol, 2008, 433: 159-175.
- [10] Fuller DH, Loudon P and Schmaljohn C. Preclinical and clinical progress of particle-mediated DNA vaccines for infectious diseases [J]. Methods, 2006, 40: 86-97.
- [11] Ohta S, Suzuki K, Ogino Y et al. Gene transduction by sonoporation [J]. Dev Growth Differ, 2008, 50: 517-520.
- [12] Neumann E, Schaefer-Ridder M, Wang Y et al. Gene transfer into mouse lymph cells by electroporation in high electric fields [J]. EMBO J, 1982, 1: 841-845.
- [13] Gronevik E, Tollefsen S, Sikkeland LI et al. DNA transfection of mononuclear cells in muscle tissue[J]. J Gene Med, 2003, 5: 909-917.
- [14] Cemazar M and Sersa G. Electrotransfer of therapeutic molecules into tissues[J]. Curr Opin Mol Ther, 2007, 9: 554-562.
- [15] Aihara H and Miyazaki J. Gene transfer into muscle by electroporation in vivo[J]. Nat. Biotechnol, 1998, 16: 867-870.
- [16] Mathiesen J. Electroporation of skeletal muscle enhances gene transfer in vivo[J]. Gene Ther, 1999, 6: 508-514.
- [17] Dean DA, Machado-Aranda D, Blair-Parks K et al. Electroporation as a method for high-level nonviral gene transfer to the lung [J]. Gene Ther, 2003, 10: 1608-1615.
- [18] Medi BM, Hoselton S, Marepalli RB et al. Skin targeted DNA vaccine delivery using electroporation in rabbits: efficacy[J]. Int J Pharm, 2005, 294: 53-63.
- [19] Babiuk S, Baca-Estrada ME, Foldvari M et al. Electroporation improves the efficacy of DNA vaccines in large animals [J]. Vaccine, 2002, 20: 3399-3408.
- [20] Hao YL, Li P, Shao YM et al. Immunological potency of HIV-1 DNA vaccine and its relationship to immune dosage [J]. Chin J Biologicals, 2012, 25(8): 948-951. (In Chinese)
(郝彦玲, 李平, 邵一鸣 et al. HIV-1 DNA 疫苗的免疫效价及其与免疫剂量的相关性 [J]. 中国生物制品学杂志, 2012, 25(8): 948-951.)
- [21] Zhang Z, Xu ZY, Shao YM et al. Application of in vivo electroporation technology in plasmid mediated gene transfer and DNA vaccination [J]. China J Microbiol Immunol, 2010, 30 (6): 551-554. (In Chinese)
- (张舟, 徐智勇, 邵一鸣 et al. 体内电穿孔在质粒介导的基因转移及 DNA 免疫中的应用 [J]. 中华微生物学和免疫学杂志, 2010, 30(6): 551-554.)
- [22] Zhang QZ, Qin XM, Duan MX et al. Efficient protection of H5N1 influenza virus DNA vaccine delivering by electroporation in mammalian and avian system[J]. Prog. Biochem. Biophys, 2005, 32: 726-732.
- [23] van Drunen Littel-van den Hurk S and D Hannaman. Electroporation for DNA immunization: clinical application [J]. Expert Rev Vaccines, 2010, 9(5): 503-17.
- [24] Gothelf A, Mir LM and Gehl J. Electrochemotherapy: results of cancer treatment using enhanced delivery of bleomycin by electroporation[J]. Cancer Treat Rev, 2003, 29: 371-387.
- [25] Mir LM, Belehradek M, Domenge C et al. Electrochemotherapy: a new antitumor treatment: first clinical trial [J]. C R Acad Sci III, 1991, 313: 613-618.
- [26] Chiarella P, M Fazio E, Signori et al. Application of Electroporation in DNA Vaccination Protocols[J]. Curr Gene Ther, 2010, May: 26.
- [27] Heller JC and R. Heller. Electroporation Gene Therapy: Preclinical and Clinical Trials for Melanoma [J]. Curr Gene Ther, 2010, June: 16.
- [28] Kim CY et al. Increased in vivo immunological potency of HB-110: a novel therapeutic HBV DNA vaccine by electroporation. Exp Mol Med, 2008, 40(6): 669-76.
- [29] Yang FQ, Yu YY, Li JH et al. A pilot randomized controlled trial of dual-plasmid HBV DNA vaccine mediated by in vivo electroporation in chronic hepatitis B patients under lamivudine chemotherapy[J]. J Viral Hepat, 19: 581-593.
- [30] Dai K, Liu Y, Huang W et al. Pathogenicity and immunogenicity of recombinant Tiantan Vaccinia Virus with deleted C12L and A53R genes[J]. Vaccine, 2008, 26: 5062-5071.
- [31] Bodles-Brakhop AM, R Heller R, Draghia-Akli et al. Electroporation for the delivery of DNA-based vaccines and immunotherapeutics: current clinical developments [J]. Mol Ther, 2009, 17 (4): 585-92.
- [32] Babiuk S, van Drunen Littel-van den Hurk S, Babiuk LA. Delivery of DNA vaccines using electroporation [J]. Methods Mol Med, 2006, 127: 73-82.
- [33] Rabussay D. Applicator and electrode design for in vivo DNA delivery by electroporation[J]. Methods Mol Biol, 2008, 423: 35-59.

收稿日期: 2013-01-07 编辑: 符式刚

(上接第 370 页)

- (张婕, 王佩荣, 张慧媛, 等. 食源性致病菌分子马达检测技术研究进展 [J]. 中国公共卫生, 2011, 10(27): 1252-1254.)
- [5] Liu DL, Quan ZQ. Analysis on results of food hygiene inspection in Luoyang City in 2005~2006 [J]. Prev Me Tribune, 2008, 14(3): 263-264. (In Chinese)
(刘大良, 全志琴. 2005-2006 年洛阳市部分食品卫生检测资料分析 [J]. 预防医学论坛, 2008, 14(3): 263-264.)

- [6] Zhou LJ, Chen G, Wang XJ. Survey of contamination status of market foods with pathogenic bacteria in Mian-yang [J]. Chin Trop Med, 2011, 11(10): 1134-1135. (In Chinese)
(周良君, 陈果, 王学军. 绵阳市市售食品病原菌污染状况调查 [J]. 中国热带医学, 2011, 11(10): 1134-1135)

收稿日期: 2012-12-19 编辑: 吴中菲