Curriculum Vitae

of

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Curriculum Vitae
of
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Education Background

1982 B.S. Animal Science, Northeast Agricultural University (NEAU), Harbin, China
1985 M.S. Dairy Technology, Thesis: Studies on Physico-chemical Composition and Characteristics of Goats Milk, NEAU, Harbin, China
1990 Ph.D. Food Chemistry, Thesis: Heat-induced Modifications of Milk Proteins, National University of Ireland at Cork (UCC), Ireland

Employment

2008-Present	*Full Professor*	Department of Nutrition and Food Sciences, University of Vermont (UVM), Burlington VT 05405
1999-2007	*Associate Professor*	The University of Vermont
1997-1998	*Res. Assistant Professor*	Department of Nutrition and Food Sciences, UVM
1993-1996	*Research Associate*	Department of Animal and Food Sciences, UVM
1992-1993	*Professor & Vice Chair*	Department of Food Science, NEAU, Harbin, China
1991-1992	*Associate Professor*	Department of Food Science, NEAU, Harbin, China
1990-1991	*Assistant Professor*	Department of Food Science, NEAU, Harbin, China
1989-1990	*Postdoctoral Associate*	Department of Food Chemistry, UCC, Ireland
1987-1989	*Teaching Assistant*	Department of Food Chemistry, UCC, Ireland
1985-1987	*Lecturer*	Department of Food Science, NEAU, Harbin, China

Teaching Experience

1. **Courses**:

-NFS 205 Functional Foods-Principles and Technology (2000-)
-NFS 295 Functional Foods-Labs (2010-)
-NFS 295 Food Composition and Analysis (2018)
-NFS 095 China-US Perspectives on Agricultural Entrepreneurship: Dairy- A case study (08, 10)

2. **Short courses/Seminars:**

-Infant formula chemistry and technology (1992), Xiamen, China
-Mozzarella cheese and fermented dairy foods (1996), Beijing, China
-Overview of American dairy industry (1997), Harbin, China
-Cheese making (1998), Burlington, VT USA
-Ice cream and yogurt production (1999), Skopje, Macedonia
-Milk quality control (1999), Beijing, China
-Milk chemistry and yogurt technology (2000), Orich, Macedonia
-Prebiotics and probiotics (2000), Beijing, China
-Component interactions in infant formulas (2000), Harbin, China
-Trends in dairy industry of America (2001), Yingchuan, China
-Functional Foods (2001), Beijing, China
-Health benefits of soy products (2002), Beijing, China
-Pre- and probiotics (2002), Harbin, China
-Overview of American Dairy Industry (2002), Chengdu, China
-Infant formula formulation and quality control (2002), Shijiazhuang, China
-Membrane processing technology (2003). Beijing, China
-Research activities in food science at UVM (2004), NEAU, Harbin, Chin
-Functional dairy products (2005), Beijing, China
-Aspects of functional foods research in America (2006), Huhhott, China
-Advanced Dairy Chemistry (2007), Shanghai Wyeth, China
-Functional dairy foods (2008), Wandashan Dairy, Harbin, China
-Amercan dairy industry-what china could learn from it (2009), Mengnu Dairy, Huhhot, China
-Functional foods and whey based environmentally safe products (2010), China Agricultural University
-Whey based environmentally safe products (2011), Heilongjiang Agricultural University, China
-Differences between American and Chinese dairy industries (2012), Jilin University
-Oats based functional foods and their health benefits (2013), Jilin University
-Biochemical, functional and nutritional properties of whey proteins (2014), China Agriculture Academy, Beijing.
-Recent advance in infant formula formulation (2015), Beijing Shanyuan Foods
-Functional foods research at UVM (2016), China Oil and Foodstuffs Co., Beijing
-Premature infant formula chemistry and formulation (2017), Beijing Sanyuan Foods
-Goat milk chemistry and new products development (2018), Feihe Dairy, Beijing
-Outlines of infant formula clinical trial in the US. (2019), Feihe Dairy, Beijing

Supervising graduate student

-Faculty Member of Graduate College, University of Vermont

-College of Food Science, Northeast Agricultural University

Member of Committees

-CALS Hatch Committee (2007-2015)
-CALS Honors Committee (2003-2005)
-CALS International Committee (2001-2005)
-University International Advisory Committee
-International Committee of American Dairy Science Association
-Vermont Dairy Industry Advisory

Extension and new product development

Consulting Services:
1997. Abenaki Natural Beverage, Inc VT
1998. Friendly Dairy, Inc., NY
1998. Custom Control, VT
1999. Beijing Dairy Co-op, P.R. China
1999. Land O'Lakes (USAID MAMA Program), Macedonia
1999. Adell Corporation, WI
2000. Land O'Lakes (USAID MAMA Program), Macedonia
2001. Land O'Lakes (USAID MAMA Program), Macedonia
2002. Wyeth Nutritionals, Inc.
2003 Beiya Dairy, Inc., China
2003 Beijing Shanyuan Foods, China
2004 Beiya Dairy, Inc. China
2004. Wyeth Nutritionals, USA
2005. Wyeth Nutritionals, USA
2005. Beiya Dairy, Inc. China
2005. Yinluo Dairy Group, China
2005. Oak Knoll Dairy, LLC. VT
2005. PBM Nutritional Products, Inc. USA
2006. Millborne Dairy, LLC, Whiting, VT
2007. CGL, LLC. Boston MA
2007. Woodstock Water Buffalo Company, VT
2008. Does' Leap LLC. VT
2008. Oakknoll Dairy, VT
2009. Stering Technolgies, S. Dakota
2010. Wandashan Dairy, China
2011. Oakknoll Dairy, VT
2012. Prospect Avenue Partners, VT
2013. Wandashan Dairy, Harbin, China
2015. Smith & Salmon, Inc., VT
2016. FoodScience Cooperation, Essex Junction, VT
2017. Feihe Dairy, Beijing, China
2018. FoodScience Cooperation, Williston, VT
2019. FoodScience Cooperation, Williston, VT

As the principal investigator, the following products have been developed:

- Two milk-based infant formulas (1990-1992)
- Two milk-based nutritional supplement products (1993)
- Cream liquor product (1993)
- Non-fat Cream Cheese (1996)
- Two natural fruit beverages (1997)
- Probiotic yogurt cheese (1998)-Licensed to VT Quality Dairies, LLC
- Probiotic drinking yogurt (1998) licensed to Lyberte yogurt Canada
- Symbiotic yogurt beverage (2001) transferred to an US company
- Probiotic Fromage Blanc cheese (2002) transferred to VT Cheese Co.
-Oats-based symbiotic beverage (2003)
-Environmentally safe wood finish containing whey proteins licensed to two companies (2003 & 2004)
-Symbiotic oats yogurt (2004)
-Symbiotic goat's milk beverage (2005) transferred to an US company
-Symbiotic yogurt drinks (06) and transferred to a company in VT
-Symbiotic non-lactose yogurt (07) transferred to GCL LLC (Boston)
-Symbiotic goat's milk yogurt (08) Oakknoll Dairy (VT)
-Low fat functional goat's milk yogurt (2012) Oakknoll Dairy (VT)
-Maple tap water beverage (2013) Big Barn Grazers (VT)
-Infant formula for premature and low birth weight babies (2014), Wandashan Dairy
-Whey protein encapsulated Diindomethane for FoodScience Coop (2017)
-Whey protein encapsulated CBD for Cannabis Science and Education Institute (2019)

Research Interests

Whey protein based natural nano materials
Functional foods design and development
Whey protein based microencapsulation of probiotics
Whey utilization and environmentally safe products
Pre- and probiotics
Milk-, soy, and oats-based functional foods
Component interactions in infant formula & nutritional products
Chemistry and technology of cheese and fermented dairy products
Alternative treatments of milk and apple cider
Functional and nutritional properties of milk proteins
Goat's milk chemistry and processing technology
Egg chemistry and processing
Buffalo and yak milk chemistry and processing

Professional Membership

Institute of Food Technologists (IFT)
American Society for Nutritional Sciences (ASNS)
American Dairy Science Association (ADSA)
American Chemical Society (ACS)

Professional services

Member of Editorial Board of
Functional Food and Biomedicine,
Journal of Probiotics and Health
Journal of Food, Nutrition and Dietetics
International Journal of Biotechnology Research and Practice
Ad Hoc Reviewer of Journal of Food Hydrocolloids
Ad Hoc Reviewer of Journal of Dairy Research (UK)
Ad Hoc Reviewer of International Dairy Journal
Ad Hoc Reviewer of Journal of Dairy Science
Ad Hoc Reviewer of Journal of Food Science
Ad Hoc Reviewer of Journal of Applied Polymer Science
Ad Hoc Reviewer of Journal of the Science of Food and Agriculture (UK)
Ad Hoc Reviewer of Journal of Agricultural and Food Chemistry
Ad Hoc Reviewer of Journal of Food Science and Technology (Swiss)
Ad Hoc Reviewer of Journal of Applied Microbiology
Ad Hoc Reviewer of Journal of Food Biochemistry
Ad Hoc Reviewer of Carbohydrate Polymers
Member of China Animal Products Processing Association (90-95)
Reviewer of Journal of China Dairy Industry (90-93)
Member of Editorial Board of Journal of Northeast Agricultural College (91-95)
Invited Judge for IFT Graduate Student Paper Competition of 1996
Invited Judge for American Cheese Association Cheese Competition of 1999

Honors and Awards

1991 Excellent Paper Award of China Animal Products Processing Association
1992 Fok Ying Tung Young Teacher Award (Fok Y.T. Education Foundation, HK)
1993 Achievement Award in Higher Education Granted by the State Council of China
1996 The US Permanent Residency Awarded Under the Category of Outstanding Professor or Researcher
Technical Advisor for the Mayor of Harbin City (91-94)
Technical Advisor for VV Food and Beverage Co. Ltd. (2000-2003)
Technical Advisor Beiya Dairy Co., Ltd. (2003-)
Member of International Who is Who (2001)
Member of United Who's Who in Sci. and Engineering (2003, 2004)
Member of Scientific Advisory Panel, DMI/National Milk Producers Federation. (2003)
Chief Scientist of Beiya Dairy Inc., Daqing, China (2003-2007)
Scientific Advisor to the City of Qiqihar, Heilongjiang Province, China
Who's Who in Science and Engineering (05, 06, 07)
Foreign Expert member of Spring Project of China Ministry of Education
Adjunct Chief Scientist, Key Laboratory of Dairy Biochemistry at Inner Mongolia Agricultural University, Ministry of Education, China (2006-2011)

PUBLICATIONS

Guo M. R., et al. 2009. Environmentally safe wood finish coating systems using proteins and water-based resins as binding materials: US Patent No. 7556862.

Lou, C.Y., Bao, Z.X., **Guo, M.R.** 1996. Infant formula manufacturing technology. China Patent No. CN1129524

Huang, M. and **Guo, M.R.** 1994. Instant Milk Powder Manufacture by using Multi-disk Centrifugal Atomizer Spray Drying. China Patent No. CN2163519

Guo, M.R. Symboitic beverage/drink w/o carbonation and popsicles: Pending US 2006/0141097 A1 Environmentally safe wood adhesives containing whey proteins: Pending

Books

Goat Milk Chemistry and Products Manufacturing Technology, Guo, M.R., May, 2020. Nova Science Publishers, Hauppauge, NY, 11788 USA

Whey protein production, Chemistry, Functionality and Application. **Guo, M.R**. April, 2019. John Wiley & Sons Limited, Hoboken, NJ.

Human Milk Biochemistry and Infant Formula Manufacturing Technology. **Guo, M. R.** 2014. Elsevier Academic Press/Woodhead Publishing Ltd., Oxford, UK.

Functional Foods: principles and technology. **Guo, M.R.** 2009. Woodhead Publishing, Ltd., Oxford, UK

Functional Foods-Principles and Technology. **Guo, M.R**. 2007. CTI Publications Inc., MD, USA

Functional Food Technology. **Guo, M. R.** 2011. China Light Industry Publishing House, Beijing, China

Handbook of Dairy Science and Technology. Zhang, H. P. and Zhang, L.B. (eds), **M.R. Guo** (Chief Reviewer). 2005. China Light Industry Publishing House, Beijing, China.

Goat's Milk and Goat's Milk Product Technology. **Guo, M.R.** and Luo, C. X. 1992. Heilongjiang Science & Technology Publishing House, Harbin, P. R. China.

Milk and Dairy Product Technology. Luo, C. X. and **Guo, M.R.** 1992. China Agricultural Science Publishing House, Beijing, P. R. China.

Milk and Dairy Product Technology Laboratory Manual. **Guo, M.R.**, Sun, Z.H. and Cheng, T. 1992. Northeast Agricultural University Press, Harbin, P.R. China.

Book Chapters

Guo, M. R. and Wang, Guorong. 2015. Whey, In: The Oxford Companion to Cheese. Oxford University Press, New York, NY, USA

Guo, M.R. 2015. Modified milks. In: Food Sciences. Online Database. Elsevier, Oxford, UK

Guo, M.R. 2011. Modified milks. In: Encyclopedia of Dairy Sciences. H. Roginski, P.F. Fox, and J. Fuguay, eds. Academic Press, London (In press).

Guo, M.R. and G. H. Hendricks. 2010. Improving buffalo milk. In: Improving the Safety and Quality of Milk. Mansl Griffiths, ed. pp 402-416.Woodhead Publishing Limited, London.

Hendricks, G.H. and **M.R. Guo**. 2006. Significance of milk fat in infant formulae. In: Advances in Dairy Chemistry-2: Lipids, P.F. Fox and P.L. McSweeney, eds. pp467-479. Elsevier Press, Boca Raton, FL.

Silk, T.M., **M. R. Guo**, Y. Park and G. Haenlein. 2006. Yak Milk. In: Y. Park and G. Haenlein

(eds), Handbook of milk of non-bovine mammals. pp345-353. Blackwell Publishing, Ames, Iowa.

Park, Y. and **M. R. Guo**. 2006. Goat's milk products. In: Y. Park and G. Haenlein (eds), Handbook of milk of non-bovine mammals. pp59-106. Blackwell Publishing, Ames, Iowa.

Guo, M.R. 2003. Goat milk. In: Encyclopedia of Food Sciences and Nutrition. pp2944-2949. B. Caballero, L. Trugo, and P. Finglas, eds. Academic Press, London.

Guo, M.R. and Smith, C.R. 2002. Modified milks. In: Encyclopedia of Dairy Sciences. H. Roginski, P.F. Fox, and J. Fuguay, eds. pp.1646-1650. Academic Press, London.

Guo, M. R. and Kindstedt, P.S. 2001. Carnitine and its Applications in the Formulations of Infant Formula and Functional Foods. In: Advances in the Healthy Foods of China. Yu, S.Y. (ed), pp. 464-473, People's Medical Publishing House, Beijing, China.

Zhang, L.W., **Guo, M.R.** and Kindstedt, P.S. 2001. Functional Aspects of Fermented Dairy Products by Lactobacillus and Bafidobacteria. In: Advances in the Healthy Foods of China. Yu, S.Y. (ed), pp. 696-705, People's Medical Publishing House, Beijing, China.

Zhang, L.W., **Guo, M.R.** and Kindstedt, P.S. 2001. Chemistry and Utilization of Bovine Colostrum. In: Advances in the Healthy Foods of China. Yu, S.Y. (ed), pp. 552-564, People's Medical Publishing House, Beijing, China.

Guo, M. R. and Kindstedt, Paul S. 1996. New Nutritive Additives: Taurine and Carnitine. In: The Handbook of Chinese Nutraceutical Foods. Yu, S.Y. (ed), pp54-58, Heilongjiang Science & Technology Publishing House, Harbin, P.R. China.

Guo, M. R., Kindstedt, Paul S. and Hseish, A. 1996. FDA Regulations of Health Claims for Food Labeling. In: The Handbook of Chinese Nutraceutical Foods. Yu, S.Y. (ed), pp173-181, Heilongjiang Science & Technology Publishing House, Harbin, P.R. China.

Guo, M. R. 1986. Microbiology of Milk and Milk Products. In: Animal Products Processing Technology. Heilongjiang Sci. & Tech. Publishing House, Luo, C.X. (ed), pp18-29.

Peer Reviewed Papers

Wang C., Wang, C.N., Gao F., Xu Y. Y. and **M.R. Guo**. 2018. Effects of polymerized whey protein on goaty flavor and texture properties of fermented goat milk in comparison with beta-cyclodextrin. J. Dairy Research, 85:465-471.

Wang, G.R., N. Liu, and M.R. Guo. 2018. Use of whey protein as a natural polymer for tissue adhesive: preliminary formulation and evaluation in vitro. Polymers 10, 843; doi:10.3390/polym 10080843.

Wang, M., C.N. Wang, and **M.R. Guo**. 2018. Effects of polymerized whey protein-based microencapsulation on survivability of Lactobacillus acidophilus LA-5 and physiochemical properties of yoghurt. Journal of Microencapsulation. 10.1080/02652048.2018.1538266.

Sun, X. M., Wang, C. N. and Guo M. R. 2018. Interactions between whey protein or polymerized whey protein and soybean lecithin in model system. J. Dairy Science. 101:9680-9692.

of probiotics in symbiotic law fat buffalo milk yogurt. African J. of Biotechnology, 11:12331-12338.

Li, S., S. Gokavi, **M.R. Guo**. 2012. Interactions between Lactobacillus acidophilus strains and starter cultures LB350/ST350 during fermentation of goat's milk. African J. of Biotechnology, 11:11271-11279.

Wang, W., Z. Zhao, Z. Gao, and **M. R. Guo**. 2012. Water-resistant whey protein based wood Adhesive modified by post-treated phenol-formaldehyde oligomers (PFO). Bioresources, 7(2):1972-1983.

Zhang, T. H., Zhang, Z.D., H.Y., Yan, D. Li, Z.N. Yang and **M.R. Guo**. 2012. Effects of stabilizers and exopolysaccharides on physiochemical properties of fermented skim milk by Streptococcus thermophilus ST1. African Journal of Biotechnology, 11(12):6123-6130.

Wang, W, Y. Bao, G. Hendricks, **M. R. Guo**. 2012. Improving functionality of probiotic goat's milk yogurt using polymerized whey protein as a co-thickening agent. Intern. Dairy J. 24:113-119.

Zhao, Z. Gao, Z., W. Wang and **M. R. Guo** 2011. Formulation and characterization of whey protein based aqueous polymer–isocyanate (API) adhesives for structural woods I. Formulation and processing technology. Pigments & Resin Technology. 40(6):410-417.

Wang, W.B., Zongyan Zhao, Zhenhua Gao, and **M.R. Guo**. 2011. Whey protein-based water resistant and environmentally safe adhesives for plywood. BioResources. 6(3):3339-3351.

Gao, Z. Yu, G., Bao, Y. and **M.R. Guo**. 2011. Whey protein based environmentally friendly wood adhesives. Pigment and Resin Technology, 40(1):42-48.

Gao, Z., Wang, W., Z. Zhao, and **M. Guo**, 2010. Novel whey-protein based Aqueous Polymer–Isocyanate (API) adhesive for Glulam. Journal of Applied Polymer Science. 120:220-225.

Cheng, J.J., Li, X., M.R. Guo, 2011. Optimization of bacteriocin production by lactobacillus plantarum B28. China Dairy Industry, 39(4):16-22.

Cheng,J.J., X. Li, **M.R. Guo**. 2011. Antibacterial mechanism of plantaricin by Lactobacillus plantarum B-28, China Dairy Industry, 39(5):31-33.

Wang, W., Z. Zhao, Z. Gao, **M. R. Guo**. 2010. Environmentally safe aqueous adhesive prepared using whey proteins for water-resistant plywood. China Adhesion 31(9):50-54

Christiansen, S., **M. R. Guo** and Derek Kjelden. 2010. Chemical composition and nutrient profile of low molecular weight fraction of bovine colostrum. International Dairy J. 20:630-636.

Walsh, H., J. Ross, and **M.R. Guo**. 2010. Physiochemical characteristics, probiotic viability and microstructure of an oat-based yogurt like product. J. Food Science. 75(5):M327-337.

Wu, R., L. Wang, H. Li, Bi, Menghe, J. Wu, **M. R. Guo**, H. Zhang, 2009. Isolation and preliminary probiotic selection of lactobacilli from koumiss in Inner Mongolia. J. Basic Microbiology. 4:318-326.

Zhang, H., S Gokavi, Y.W. Young, **M.R. Guo**. 2009. Chemical composition of home made goat's milk cake (fresh cheese). Australian J. of Dairy Technology 64:170-174.

Zhang, H. Wand, J. Menghebilige, Chen, Y, Yun, Y. Sun, T. Li, H. Guo, M.R. 2009. Nutritive composition of Tarag, the traditional naturally-fermented goat milk in China. Ecology of Food and Nutrition, 48:112-122.

Sun, B., Zhang, X., **Guo, M.R**., Xu, N. 2009. Mutant Breeding of L(+)-lactic acid producing a strain of Rhizopus Oryzae. Food and Fermented Industries, 35(5):50-52.

Guo, M. R. and G. M. Hendricks. 2008. Chemistry and biological properties of human milk. Current Nutrition and Food Science. 5:1-45.

Kassa, A., M. Brownbridge, B. Paker, M. Skinner, V. Gouli, **M. R. Guo**, F. Lee, T. Hata. 2008. whey for mass production of *Beauveria bassiana and Metarhizium anisopliae*. Mycology Research 112:583-591.

Gao, Y. and **M.R. Guo**. 2008. L-lactic acid production by batch fermentation of whey permeate using *L. casei and L. lactis.* China Dairy Industry 36(3): 4-9.

Gao, Y., F. Guo, S. Gokavi, A. Chow, Q.H. Sheng, **M.R. Guo**. 2008. Quantification of water-Soluble vitamins in milk-based infant formulae using biosensor-based assays. Food Chemistry 110:769-776.

Zhang, H., M. Yao, and **M.R. Guo**. 2008. A survey of the chemical and microbiological composition of Kurut, naturally fermented yak milk from Qinghai, China. Food Control 19:578-586.

Lee, F., **M. R. Guo**. 2007. Sheep Milk Fat Determination by Rose Gottlieb Reference Method-Collaborative Study November 2006. ISO 1211 FIL/IDF:1996.

Guo, M.R. 2007. Chemical and nutritional aspects of human milk and infant formula formulation and processing. The Health of Benefits of Milk and Dairy products, pp 2-26. International Dairy Federation Bulletin 417/2007.

Sheng, Q.H., J. Li, M.S. Alam, and **M.R. Guo.** 2007. Gross composition and nutrient profiles of Chinese Yak milk. International Food Science and Technology, 43: 568-572.

Guo, M. R., S. Gokavi, J. J. Cheng, Y. Q. Jiang, Y. L. Gao, 2006. Prebiotics and Probiotics and colon cancer. China Dairy Industry. 34:26-31.

Farnsworth, J., J. Li, and **M. R. Guo**. 2006. Effects of transglutaminase treatment on functional properties and probiotic culture survivability of goat milk yogurt. Small Ruminant Research 65:113-121.

Wright, N.C., Li, J. and **M.R. Guo.** 2006. Microstructural and mold resistant properties of environmentally friendly oil-modified polyurethane based wood finish products containing polymerized whey proteins. J. Applied Polymer Sci. 100:3519-3530.

D'Amico, D.J., Silk, T.M., and **M.R. Guo.** 2006. Effect of ultrasound treatment on the natural flora and microstructure of milk. J. Food Protection. 69:556-563.

Li, J. and **M.R. Guo.** 2006. Effects of polymerized whey proteins on consistency and syneresis of Probiotic goat's milk yogurt. J. Food Sci. 71:C34-38.

Heping Zhang, Jirimutu, Dianbo Zhao, Hongxia Liu, Jiancai Li, and **M.R. Guo**. 2005. Changes in chemical composition of Alxa Bactrian camel milk during lactation. J. Dairy Sci. 88:3402-3410.

Gokavi, S. and **M.R. Guo**. 2005. Prebiotics and probiotics and prevention of colon cancer. J. Cancer Integrated Medicine 3:112-119.

Gokavi, S., Lanwei Zhang, Ming-Kuei Huang, Xin Zhao and **M.R. Guo**. 2005. Oats Based Symbiotic Beverage Fermented by *L. plantarum,L. paracasei ssp. casei* and *L. acidophilus.* J. Food Sci. 70 (4): M216-223.

Guo, M. R. 2005. General situations of American dairy production R & D. Proceedings of The 4th International Dairy Development Summit Forum, July 1-3, 2005, Beijing, China, pp85-101.

Guo, M.R. 2004. Functional foods and health. China Food Newspaper-Weekend Edition, Page 2s, September 25-October 30, 2004.

Guo, M.R. and S. Gokavi**.** 2004. Role of functional foods in treating cancer patients –A healing approach in cancer treatment. Journal of Cancer Integrative Medicine 2(2): 77-84.

Guo, M. R. P. H. Dixon, Y. W. Park, J. A. Gilmore, and P. S. Kindstedt. 2004. Relationship between the yield of Chevre/cheese and chemical composition of goat's milk. Small Ruminant Res. 52:103-107.

Gokavi, S.S. and **M.R. Guo.** 2004. Chemical composition and nutritional profiles of Garden

Cress (*Lepidium sativum*) seeds. Plant Foods for Human Nutrition 59: 105-111.

Gotcheva, V., Hristozova, E., Hristozova, T., Angelov, A, Roshkova, Z., and **M.R. Guo**. 2003. Assessment of potential probiotic properties of lactic acid bacteria and yeast strains. Food Biotechnology, 16:211-225.

Farnsworth J. P., Li, Jiancai, and **M.R. Guo.** 2003. Improved structure and consistency of probiotic goat's milk yogurt. The Aust. J. Dairy Technol. 58: 187.

Chi,Yujie, Tian, Bo, **M.R. Guo.** 2003 Enzymatic Hydrolysis Condition for Egg White Proteins. J. Harbin Institute of Technology **10** (2):225-228.

Guo, M. R. and J. Li. 2003. American Cheese Industry-Status and Trends. China Dairy Industry J. 32 (3): 42-44.

Hendricks, G.M., **M.R. Guo.** and Kindstedt, P.S. 2001. Solubility and Relative Absorption of Copper, Iron, and zinc in two Milk-based Liquid Infant Formulae. International J. Food Sci. Nutri. 52:419-428.

Guo, M.R., Dixon, P.H., Park, Y.W., Gilmore, J. A., and Kindstedt, P.S. 2001. Seasonal Changes in the Chemical Composition of Commingled Goat's Milk. J. Dairy Sci. 84(E. Suppl.):79-83.

Metzger, L.E., Barbano, D.M., Kindstedt, P.S. and **M.R. Guo.** 2001. Effect of Milk Pre-acidification on Low Fat Mozzarella Cheese: II. Chemical and Functional Properties during Storage. J. Dairy Sci. 84:1348-1356.

Metzger, L.E., Barbano, D.M., Rudan, M.A., Kindstedt, P.S. and **M.R. Guo**. 2000. Whiteness Change during Heating and Cooling of Mozzarella Cheese. J. Dairy Sci. 83:1-10.

Guo, M.R., Flynn, A. and Fox, P.F. 1999. Heat-induced Changes in Nutritional Properties of Sodium Caseinate. Intern. Dairy J. 9: 243-247.

Guo, M.R., Hendricks, G.M. and Kindstedt, P.S. 1999. Effect of processing on Protein-protein and Protein-lipid interactions and Mineral Distribution in Infant Formula. Intern. Dairy J. 9: 395-397.

Guo, M.R., Wang, S.P., Li, Z. and Kindstedt, P.S. 1998. Ethanol Stability of Goat's Milk. Intern. Dairy J. 8:57-60.

Guo, M.R., Hendricks, G.M. and Kindstedt, P.S. 1998. Component Distribution and Interactions in Powdered Infant Formula. Intern. Dairy J. 8:333-339.

Kindstedt, P.S. and **M.R. Guo.** 1998. A Physico-Chemical Approach to the Structure and Function of Mozzarella Cheese. Aust. J. Dairy Technol. 53:70-73.

Guo, M.R., Kindstedt, P.S., Metzger, L, and Barbano, D.M. 1998. Low-Fat Mozzarella cheese from pre-acidified milk. Aust. J. Dairy Technol. 53: 52.

Wang, W., Kindstedt, P.S. and **M.R. Guo.** 1998. Changes in Composition and Meltability of Mozzarella Cheese during Contact with Pizza Sauce. J. Dairy Sci. 81:609-614.

Zhang, L.W. and **M.R. Guo.** 1998. Chemical Composition of Bovine Colostrum and Immunoglobulin Concentrate Manufacture. China Food Industry, 1998 (1):20-22.

Rudan, M.A., Barbano, D.M., **M.R. Guo** and Kindstedt, P.S. 1998. Effect of the Modification of Fat Particle Size by Homogenization on Composition, Proteolysis, Functionality, and Appearance Reduced Fat Mozzarella Cheese. J. Dairy Sci. 81:2065-2076.

Glahn, R.P., Lai, C., Hsu, J., Thompson, J.F., **M.R. Guo** and Van Campen, D.R. 1998. Decreased Citrate Improves Iron Availability from Infant Formula: Application of an In Vitro Digestion/Caco-2 Cell Culture Model. J. Nutri. 128:257-264.

Guo, M.R., Gilmore, J. and Kindstedt, P.S. 1997. Effect of Sodium Chloride on the Serum

Phase of Mozzarella Cheese. J. Dairy Sci. 80:3092-3098.
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Guo, M.R., Flynn, A., Fox, P.F. 1988. Study on Protein Quality in Premature Infant Formulae. Proc.18th Annual Food Science and Technology Research Conference. University College, Cork, Ireland, September 8-9, 1988.

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Luo, C.H. and **M.R. Guo.** 1986**.** Studies on Physiochemical Composition of Goats' Milk. XXII International Dairy Congress. Hague, the Netherlands, September 29-October 3, 1986.

Research grants and contracts

Whey protein encapsulated diindomethane 2018-2019. FoodScience Coop $75,000.
M.R. Guo. PI.

Whey Protein emulsified powdered CBD development 2019-2022. $150,000
Cannabis Science and education Institute, **M.R. Guo. PI.**

Infant formula clinical trial 2017-2019. Feihe Dairy **M. R. Guo**
Whey protein based tissue adhesives $40,000.

2018-2019. USDA-NIFA Hatch **M. R. Guo, PI**.

Maple sap based sports drink development $16,000.
2016-2017. Smith & Salmon, Inc. Burlington, VT. **M. R. Guo, PI**.

Organic maple sap beverage development and shelf-life studies $9,000.
2015-2016. Vermont Maple Sugar Producers, **M.R. Guo, PI**

Development and characterization of whey protein based tissue adhesive $64,500.
2014-2017. USDA-NIFA Hatch, **M.R. Guo, PI.**

Development of flavored maple sap water beverages $9,600.
2012-2013. Prospect Avenue Partners, **M.R. Guo, PI.**

Whey protein based natural nanopolymer materials for food packaging. **$**63,000.
2011-2014. USDA Hatch. **M.R. Guo, PI.**

Whey protein based adhesives for Skate Board manufacturing. $10,000.
2011. UVM Innovation Funds, **M.R. Guo, PI.**

Develop whey protein based environmentally safe adhesives. $232,667.
2010-2012. USDA NIFA, **M.R. Guo, PI.**

Microencapsulation of probiotic lactobacilli using polymerized whey protein. $41,000.
2009-2011. USDA Hatch, **M.R. Guo, PI.**

Whey protein based environmentally safe wood adhesives. $186,000.
2009-2011. USDA CSREES**, M.R. Guo, PI.**

Physicochemical properties and survivability of symbiotic Oat-based functional food Beverages. 2008-2010. USDA CSREES. **M. R. Guo, PI.** $79,000.

Scale-up studies and market testing for soy-based coffee creamer. $50,700.
2008-2009. UVM Ag Innovation Funds. **M.R. Guo, P.I.**

Development of goat's milk Kefir. 2008. Does' Leap Farm. **M.R. Guo, PI**. $4,000.

Development of oats-based functional foods. $30,000.
2006-2009. USDA-Hatch.. **M.R. Guo, PI.**

Environmentally safe whey-based biodegradable plastics and adhesive products. $183,000.
2007-2008. USDA-CSREES **M. R. Guo, PI**.

Develop low fat symbiotic buffalo milk yogurt $22,000.
2007. Woodstock Water Buffalo Company. **M.R. Guo,** PI

Goat milk infant formula development and its marketing. $100,000.
2007-2008. USDA-NRI, Seed Grant, Park, Y. PI. **M.R. Guo, Co-PI**

Development, research & marketing of environmentally safe whey-based floor finish. $100,000.
2006-2007. Vermont Department of Forest, Parks & Recreation. **M.R. Guo**, Co-PI

Conduct Branding Analysis for environmentally friendly wood finish. $50,000.
2006-2007. Vermont Department of Forest, Parks & Recreation. **M.R. Guo**, Co-PI

Evaluation and validation of Biacore Q instrument for analyses of B2 and $12,000.
pantothenic acid in infant formulas. 2006. **M.R. Guo**, PI Biacore Inc. NJ.

Effects of ultrasound treatments on microbiological & microstrutural properties of $50,000.
Shelf-life stable milk and milk-based beverages. 2006-2007. VDPC/NEDPB. **M.R. Guo**, PI.

Develop biodegradable plastic using cheese whey. $290,000.2006-2008. USDA **M.R. Guo**, PI.

Evaluation of functional properties of whey protein products for infant formula $23, 000.
Formulation. 2006-2007. Wyeth Nutritionals, USA. J.J. Cheng PI, M.R. GUO, Co-PI.

Evaluation on functionalities of ingredients for infant formula manufacturing. $22,000
2004-2005. Wyeth Nutritionals, USA. J. J. Cheng, PI and **M.R. Guo,** Co-PI

Development of environmentally safe products from cheese whey $259,000.
2005-2008. USDA **M.R. Guo, PI.** And Fengqi Zhao, Co-PI.

Formulation of whey-based environmentally safe products for pests control. $129,500.
2005-2008. USDA **M.R. Guo, PI**

Development, evaluation and safety of entomopathogen for control of arthropod pests. $93,000.
2004-2007. USDA Hatch, M. Brownbridge, PI, **M.R. Guo,** M. Skinner, **Co-PIs.**

Marketing and development of organic soy products. 2003-2005. $200,000.
USDA. **M. R. Guo**, PI.

Develop environmentally safe snow/ice melting products from cheese whey. $240,000.
2003-2006. USDA. **M.R. Guo**, PI.

Functionality and survivability of probiotics in carbonated symbiotic milk beverage. $50,000.
2003-2004. VDPC/NEDPB. **M.R. Guo**, PI.

Develop a symbiotic Fromage Blanc. 2003. Vermont Butter and Cheese. **M.R.Guo**, PI. $4,500.

Development of an environmentally friendly ice-melting product using acid whey. $240,000.
2002-2005. USDA **M.R. Guo,** PI.

Ultrasonic treatment of milk and apple cider: A potential processing alternative. $30,000.
2002-2004. USDA Hatch, **M.R. Guo**, PI. T. Silk, Co-PI

Physiochemical characteristics of buffalo milk and its probiotic products development. $16,750.
2002-2003. Starhill Dairy, Inc. VT. **M.R. Guo**, PI

Development of a probiotic Fromage Blanc containing *L. Acidophilus*. $10,000.
2002. Vermont Butter and Cheese Company, Inc., **M. R. Guo**, PI.

Develop an environmentally friendly wood finish coating system using whey protein. $233,000.
as a primary binding material. 2001-2004. USDA, **M.R. Guo**, PI**.**

Develop a nutritional supplement product for pregnant women in developing countries.Fr20,000.
2002-2003. Nestle Nutrition Scholarship. S. Gokavi, PI, **M.R. Guo** (Host)

Functionality and component interactions of milk-based prebiotic nutritional beverage. $46,900.
2002. VDPC, **M.R. Guo**, PI

Developing an environment friendly whey protein-based wood finish coating. $159,035.
2000-2002. USDA. H. Chen, **M.R. Guo**

Validation of Biacore technology for quantifying folic acid, B12, and biotin in $29,780.
Wyeth nutritional products. 2001. Wyeth Nutritionals, Inc. **M.R. Guo**, PI.

Development of an environmental friendly ice-melting product (II). $2,000.
Helix/EPSCoR 2001. **M.R. Guo**, PI.

Improved solubility and absorption of trace elements in milk-based infant formula. $38,000.
2000-2002. USDA Hatch Grant. **M.R. Guo**, PI. B. Tyzbir Co-PI.

Solubility and distribution of trace elements in milk-based infant formula. 1999-00 $20,000.
Vermont AES Hatch Grant. **M.R. Guo**, PI; B. Tyzbir Co-PI.

Seasonal changes in nitrogen distribution and mineral profile of goat's milk. 1999 $4,300.
Vermont AES Hatch Grant. **M.R. Guo**, PI.

Development of Yogurt cheese prototypes. 1998. New England Dairy Promotion $40,000.
Council. **M.R. Guo,** Unofficial PI.

Development and manufacture of natural fruit beverages. 1997. $10,000.
Abenaki Natural Beverage, Inc., VT. **M.R. Guo,** PI.

Application of a new nonfat cream cheese base for the development of reduced fat $25,000.
and nonfat cream cheese. 1997. Vermont Dairy Promotion Council. **M.R. Guo,** Unofficial PI**.**

Research on natural whey-sweetened and calcium-fortified fruit juice $25,000.

beverages. 1997. Vermont Dairy Promotion Council. **M.R. Guo,** Unofficial PI.

Changes in chemical composition of goat's milk. 1997. $7,000.
Vermont Butter and Cheese Co. Websterville, VT. **M.R. Guo,** PI.