



2000 IFT Annual Meeting Food Expo

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60 IFT (Institute of Food Technologists)
 가 6 10 14
 Texas州 Dallas市 Convention Center
 .
 Dallas meeting 20,000
 가 가 1,300
 . 58 ,
 session 2 , Hot topic session 3 가
 IFT Technical Program 35
 session 794 poster paper 87
 session 564 oral presentation
 .
 Chemistry, Engineering,
 Microbiology, Nutrition
 Topic Biotchnology, Carbohydrates,
 Dairy, Fruits & Vegetables, Marketing &
 Management, Nonthermal Processing, Packaging,
 Seafood Topic .
 IFT가 HOT TOPICS series
 . HOT TOPICS series
 round table format 가
 , marketing, research, regulatory, operations,
 finance and education .

Food Expo 793 가 가
 , 2,452 booth(245,200ft²)
 가 Food Ingredients /
 Additives 가 111 , Laboratory / Pilot Plant
 Equipment, Instrumentation, and Supplies 가 42
 , Processing / Packaging Equipment, Instrumentation,
 and Supplies 가 109 .
 Mineral nutrition, Nonthermal
 processing Food physical chemistry,
 Functional food(Alternative medicine)
 .
 1. Applications of fats and oils in
 formulation of food products
 가 food products
 fat oil
 .
 가
 Monoj K. Gupta, N. Widla, L. Hatchwell
 , fat
 fat ,
 가

2) : , , , .

3) : pH, , skim milk

L.

innocua P. fluorecens skim milk

pilot scale HVPEF 50 KV/cm, 50 100 pulse, 3 4 Hz, 2 msec HVPEF

가

HVPEF

pilot scale full-scale 가

2)

(HPP)

가 FDA

1999 PEF 2000 IFT

가 가

가 HVPEF *Clostridium botulinum* HPP

Ohio Zhang 가 crabmeat

35 KV/cm, 59 msec blend 가 HPP

HVPEF *C. botulinum* type E

가

HVPEF (0.067M, pH 7.0) 9 M crabmeat

limonene blend *C. botulinum* type E strains

HVPEF 가

. 3 3 30 75

HVPEF 827 MPa 10

. 827 MPa 60 70

5 Alaska

Beluga 가 5 log

Crabmeat blend Alaska 5 log

45 5 827 MPa

top PEF system *E. Coli* O157:H7 가

60 . Alaka Beluga Beluga crabmeat blend (827 MPa), 35 3) Ozone
 10 가 5 log ozone 가 1902
 758 MPa, 35 , 10 Alaska ozone
 5 log 가 .
 . ozone 가
 . ozone 1982
 pectin methylesterase(PME) ozone 1992
 polyphenol oxidase(PPO) ozone 가
 HPP , fresh-cut product ,
 . 15 psi ozone
 500, 800 MPa .
 3 , 1 PME ozone ,
 가 ozone
 가 ozone
 가가 PME PPO
 가 . Ozone
 1
 lipoprotein lipopolysaccharide
 .
 가 HPP가 .
 가 가 . 0.55 1.85 mg/ ozone
 , *E. Coli* O157:H7, *P. fluorescens*, *Leuconostoc mesenteroides*, *L. monocytogenes*
 가 .
Listeria monocytogenes ozone *E. Coli* O157:H7, >
 가 *P. fluorescens* > *Leuconostoc mesenteroides* >
 . 350 MPa *L. monocytogenes* .
 , ozone
 .
 (, , , pH) *Bacillus* spp. spore coat
 ozone
 가 .
 가 ozone 가

ozone
 hydroxy free radical
 free radical
 Ozone
 가
 가
 가
 ozone
 10 gal/min
 가 63.1 99.9%
 4) 가
 pulsed light
 oscillating magnetic field
 x-ray
 ozone
 가
 5) 가
 cavitation phenomenon
 가
 가
 (cavity)
 (negative excursion)
 가 (positive
 excursion)
 (+/- 5000) (+/- 50 MPa)
 free radical
 turbulence
 가
 가
 가
 pore erosion 가
 가
 skim milk
 11 가
 15 22

가 65 , National Research Committee(NC-136) 가
 the glass transitions measurements
 review . Frozen food mobility
 temperatures-glass temperature melting
 temperature standard method
 proteoglycan cartilage . Food engineering division 9
 cartilage oral presentation session 2 poster
 session physical property
 cartilage
 가 . physical characterization (watermelon rind pickles, glycomacropeptide,
 cashew)
 가 cartilage food system(water,
 sugar, chocolate and peanut meal mixtures,
 synthesized tristearin, milk gel) physical
 property

4. Physical Properties of Foods

1) physical property

physical property
 IFT Food Engineering Division NIR 'Rapid
 division Standard Methods analysis of sugars in fruit juices by FT-
 for Measurement of Physical Properties of NIR: Comparison of sampling devices',
 Foods half-day symposium 'Prediction of rice texture by near-infrared
 . R.P. Singh 'The need for spectroscopy and partial least squares
 standard methods for measurement of physical regression' 'Chemical method for determination
 properties of foods' physical of carbon dioxide content in egg yolk and
 property standard가 가 egg albumen' 3 . Food
 yield stress Exhibition NIR
 standard method 4 , NIR
 non-frozen food thermal conductivity tool
 probe 5 DSC 10 .
 probe design NMR 18
 100 thermal conductivity NMR
 가 standard
 DSC가

2)

NIR 'Rapid
 analysis of sugars in fruit juices by FT-
 NIR: Comparison of sampling devices',
 'Prediction of rice texture by near-infrared
 spectroscopy and partial least squares
 regression' 'Chemical method for determination
 of carbon dioxide content in egg yolk and
 egg albumen' 3 . Food
 Exhibition NIR
 4 , NIR
 tool
 . IR
 5 DSC 10 .
 NMR 18
 NMR

3) NMR

NMR 18
 . NMR
 low-resolution(LR) NMR
 high-resolution(HR) NMR , imaging
 (MRI) LR 11 ,
 HR 1 , MRI 6
 .
 가 HR LR NMR
 LR NMR LR NMR
 . 가
 . 가 MRI
 가 가

Biosys. & Ag. Eng. Department of Food Science
 and Nutrition
 Pennsylvania State University Dept of Food Sci.
 LR-NMR
 Purdue University 'Studies of
 stress relaxation of cheese analog using low
 resolution magnetic resonance' NMR,
 T1, T2
 rheological properties
 NMR viscoelastic properties
 . 'Changes of
 physicochemical properties of wheat flour
 dough during resting' rheological property
 NMR relaxometry , rheometry
 and NMR relaxometry dough

4) Low resolution NMR

Low resolution NMR
 . Purdue University Department
 of Agricultural and Biological Engineering
 Department of Food Science
 Department of Food Science
 Whistler Center for Carbohydrate Research
 . Whistler Center
 HR carbohydrate
 solid-state NMR 가
 . University of
 Massachusetts Department of Food Science
 Defense Department of U.S. Army
 Natick Soldier Center
 , humectant meat
 .
 Southern University and A&M College
 Human Nutrition and Food meat
 patty NMR 2
 University of Minnesota Department of

. 'The effects of freezing
 and changing pH on relaxation times of
 yogurt' pH NMR
 , T1 T2 yogurt
 mobility emulsion
 .
 'Molecular dynamics using magnetic resonance'
 thermal analysis
 DSC NMR
 , heterogeneous
 phase transition
 .
 Southern University and A&M College
 meat patty 가
 'Hydration behavior of cardiac muscle
 surimi in meat patties' T1 T2
 T2 multi-component analysis
 binding potential
 surimi 가
 . 'HNMR studies on cooked and
 uncooked meat-based patties'
 oatrim 가 cooked uncooked

meat patty
 oatrim 가 water binding
 .
 University of Massachusetts US Army
 NMR
 . US Army가 NMR
 Army food dehydrated food
 dehydration
 rehydration
 가 NMR
 'Relationship between
 death kinetics of *Staphylococcus aureus* and
 water proton NMR relaxation time in
 intermediate moisture (IM) meats'
Staphylococcus aureus 가 NMR
 T1 humectant
 water mobility water availability
 . 'Dynamic features of microdomains in
 dough as studied by ESR and NMR'
 humectant 가 T1, T2
 ESR
 humectant
 . 'Lipid oxidation and water
 mobility in freeze-dried meat'
 meat patty 가
 NMR
 mobility가
 가
 .
 University of Minnesota LR NMR
 MRI 가
 'Formulation of caking-
 resistant powdered soups based on NMR
 study' powdered soup
 caking T2
 NMR glass transition

caking 가 T2
 . Pennsylvania State University
 high-trans vegetable fat crystallization melting
 polarized light
 microscopy (PLM) NMR, DSC
 .
 5) High resolution NMR
 NMR high
 resolution(HR) HR
 NMR LR NMR 가
 , heterogeneous
 system HR NMR
 가 LR NMR
 heterogeneous system
 LR NMR 가
 . HR NMR Mexico
 'Isolation and partial
 characterization of the Mexican San Emilion
 grape polyphenol oxidase'가
 NMR polyphenol oxidase 3
 .
 6) NMR imaging
 NMRI UC Davis가
 가 4
 'Extent of mixing with a multi-component
 batch system using MRI' imaging
 mixing
 Particle fluid 가 NMRI
 NMRI
 NMRI
 on-line 가
 'Two component mixing in a twin screw
 extruder evaluated by MRI'
 fluid가 extruding 가
 imaging , extrusion

T1, T2	extrusion	circuit analogues'	NMRI	T1
		calorimetry	heat capacities	
'Moisture migration in cooked lasagna pasta evaluated by MRI'	pasta가		physical property	
cooking	NMRI	가	NMR	
	NMR			
self-diffusion coefficient		NMR	가	
pasta cooking	가	가		
	pasta			
	NMRI	가		
	NMRI	가		
		中國	醫學經典	(皇帝內經)
		藥(drug)	飲食(food)	
	NMRI		100	中國 食
Tomographic techniques to measure fluid viscosity: MRI and UDV'(ultrasonic Doppler velocimetry)		餌療法(Chinese alimentotherapy)	金科玉條	
pipe	fluid	MRI	根本	(食藥同原)
velocimeter	fluid flow behavior		藥劑學(medicinal science)	食餌治療
			(dietary practices)	調理
			方法	
University of Minnesota	University of Massachusetts	가	diet	食料品(foodstuffs)
MRI	가	US Army		陰陽五行說(水,火,木,金,土)
distribution in different configurations of whey gel-liquid mixtures during ohmic heating using fast MRI techniques'			人體	季節
model system ohmic heating				機能性 食品
MRI	가		性	食餌療法
	heating pattern		材料	選擇
Ohmic heating	sterility		加工	調理
			food items	不適合
			(chronic disease)	
	FDA			
heating	ohmic	가		77가
	가	MRI	(functional food)	
signal intensity	가		food items	(fungus)
			(plant : root, leaf, flower & seed)	
'Modeling ohmically-heated whey protein gel				

古代文化

- 1) Fungus : poria
- 2) Roots : (ginger), (licorice), Chili pepper (,),
(garlic), (Chinese
Angelica), (Lily bulb),
(Chinese yam)
- 3) Leaves : (ginkgo), (kelp) guaranty, (yerba mate)
- 4) Flowers : (chrysanthemum), (hibiscus)
- 5) Fruits : (medlar), (hawthorn), 糧作物 (peruvian Indians)
(citrus), (peppercorn), mica
(black pepper), Ayurvedic medicine
(star anise)
- 6) Seeds : (dates), (black beans),
(longan), (black sesame), “Ayu” , “Veda”
(lotus) 治療體系 5000
- 7) Animal : (honey), (oysters)
(insomnia) 經路
(Alzhemier disease)

食

食餌成分

生活習

韓國 () 慣

食品產業 6가 (tastes) “rasas”

藥草劑(herbal medicines) 體質(constitution) “dosha”

治療食(therapeutic foods) 調和 均衡 健康 (meal) 調理

5000 疾病

道教(Taoism), 佛教(AD 400), 儒教(AD 1400) 基督教文化(AD 1900) 配合 香料 (flavor

有史以來 가 가 depth)

食文化 食事慣習 가

健康概念 道教的 信念 中 , 가 (turmeric), , 1

醫術(Chinese medicine) . 陰 (fenugreek), (cinnamon), ,

陽五行說(Yin/Yang & Five-Phases theories) (cumin) (saffron)

Turmeric(haldi manjal) . Fenugreek plant
(curries:), , (chutney), , ascorbic acid, niacin potassium(K)

藥材 spices 藥草 香辛料
Sanskrit 語 “shringavera” 가 herbs
軟化劑 風味 spices 製藥產業 植物
“胃(stomach)” 가 北美人
生薑 消化 惡心(nausea) 治療劑
血液循環 亞麻(flax),
(blueberry)

治療療法 機能性 成分(functional properties)
略史 Fenugreek
 (“abish”)
가

地中海 沿岸 . Fenugreek IFT
conference academical
fenugreek meeting Expo
調味料 治療 補助劑
氣管支炎(bronchitis), 熱病(fevers), 喉頭
炎(sore throat), 傷處(wounds), 腺 腫脹(swollen
glands), 皮膚刺戟(skin irritation), 糖尿(diabetes)
潰瘍(ulcers)
泌乳促進劑(lactation promotant) 催淫劑

(aphrodisiac)
Fenugreek Kibe