

Subject Index

Page numbers of errata are in italics.

Acknowledgment of reviewers, v

Alcohol, grain, maturation effect on (VanCauwenberge), 66

Amino acids, analysis by HPLC (Lookhart and Jones), 97

α -Amylase

accurate quantification by falling number method (Finney), 258

effect of isoenzymes in catalyzing breakdown of starch components (Kruger and Marchylo), 11

inhibitor in barley, wheat, rye, and triticale (Weselake et al), 120

Baking

bread, thermophilic yeasts (Fernandes et al), 413

bread firmness measured by Instron universal testing instrument (Redlinger et al), 223

bread flavor using Lite Salt mixture (Stroh et al), 103

bread quality of frost damaged red spring wheat (Dexter et al), 75

cake

effect of varying flour protein content on size and tenderness of angel

food and white layer cakes (Gaines and Donelson), 63

influence of flour quality parameters and postmilling treatments on size of angel food and white layer (Gaines and Donelson), 60

ingredients and formula on shear modulus (Mizukoshi), 247

shrinkage and shear modulus (Mizukoshi), 238

volume relationship with wheat and flour quality factors (Gaines), 290

cookie

evaluating spread potential of whole wheat flours from soft wheat cultivars (Gaines and Donelson), 134

size relationship with wheat and flour quality factors (Gaines), 290

Do-Corder to study dough development (Endo et al), 272

quality affected by water level and flour protein quantity (Skeggs), 458

Barley

α -amylase inhibitor in (Weselake et al), 120

composition and properties of pearled and fines fractions of (Sumner et al), 112

hull-caryopsis attachment (Gaines et al), 35

Bran

durum-, effect on spaghetti (Kordonowy and Youngs), 301

rice-, mineral, protein, phytic acid interactions (Champagne et al), 231

solubility behaviors of minerals, proteins, and phytic acid (Champagne et al), 218

Bread and breadmaking

changes in dietary fiber complex during fermentation (Frølich and Asp), 238

at elevated temperatures (Fernandes et al), 413

from European wheats grown in Europe and Kansas (Finney et al), 83

fermentation of water ferments (Kulp et al), 55

- firmness measured by Instron universal testing instrument (Redlinger et al), 223
- quality affected by whole wheat varieties and flour granulation (Finney et al), 170
- relation of quality to lipid content (Lukow et al), 419
- sensory interactions of formulations to mask KCl flour in (Stroh et al), 103
- textural attributes of French and rye breads (Brady and Mayer), 70
- Buckwheat, dehulling of, influence of water activity and temperature (Mazza and Campbell), 31, 230
- Cakes and cookies
- cakes
- effect of varying flour protein content on size and tenderness of angel food and white layer (Gaines and Donelson), 63
- influence of flour quality parameters and postmilling treatments on angel food and white layer (Gaines and Donelson), 60
- ingredients and formula on shear modulus (Mizukoshi), 247
- shrinkage and shear modulus (Mizukoshi), 242
- volume relationship with wheat and flour quality factors (Gaines), 290
- cookies
- effect of sugar type and flour moisture on surface cracking (Doescher and Hosney), 263
- evaluating spread potential of whole wheat flours from soft wheat cultivars (Gaines and Donelson), 134
- factors affecting flour quality (Abboud et al), 130
- size relationship with wheat and flour quality factors (Gaines), 290
- sugar-snap, effect of fat and sugar (Abboud et al), 124
- Carbohydrates
- of cell wall preparation from different part of rice grain (Shibuya et al), 252
- endogenous effect on aggregation of glutenin proteins (Zawistowska et al), 340
- Chromatography, rapid wheat varietal identification through gliadin RP-HPLC (Bietz and Cobb), 332
- Computer analysis of gliadin electrophoregrams
- band classification and heterogeneity (Sapirstein and Bushuk), 392
- methodology to improve relative mobility precision (Sapirstein and Bushuk), 372
- wheat cultivar identification (Sapirstein and Bushuk), 377
- Corn
- detection and gas-chromatographic determination of propionic acid as a preservative (Lamkin et al), 6
- deterioration during storage at high moistures (Fernandez et al), 137
- dry-milled fractions, fractionation and composition (Wu et al), 470
- field-, fermentation of (VanCauwenberge), 66
- fumigated with ethylene dibromide (Anderson et al), 198
- hardness determined by Stenvert hardness tester (Pomeranz et al), 108
- proteins in, HPLC for (Bietz), 201
- Crackers, baking procedure (Doescher and Hosney), 158
- Dehulling, of buckwheat, influence of water activity and temperature (Mazza and Campbell), 31, 230
- Deoxynivalenol, distribution in soft wheat mill streams (Seitz et al), 467
- Disulfide, of wheat glutenin, selective reduction of (Kawamura et al), 279
- Dough
- development, Do-Corder to study (Endo et al), 272
- water level effect on protein response (Skeggs), 458
- Electron microscopy, of wheat scab (Lookhart et al), 185
- Electrophoresis
- computerized wheat cultivar identification (Sapirstein and Bushuk), 377
- of foundation wheat seed (Lookhart et al), 185
- of gliadins (Khan et al), 310
- from different wheat classes as affected by temperature and buffer systems (Lookhart et al), 19
- one- and two-dimensional separations (Lafiandra and Kasarda), 314
- gradient SDS-PAGE of glutenin proteins (Zawistowska et al), 340
- pasta, detection of adulteration (Burgoon et al), 72
- standardization and improved relative mobility precision (Sapirstein and Bushuk), 372
- study of gliadin heterogeneity in a population of common wheats (Sapirstein and Bushuk), 392
- of triticale endosperm and germ protein fractions (Lupano and Añón), 174
- two-dimensional, of wheat endosperm protein (Payne et al), 319
- of zein (Wilson), 361
- Enzymes
- α -amylase measured by falling number method (Finney), 258
- comparison of two major α -amylase groups in catalysis of starch components (Kruger and Marchylo), 11
- endo- β -glucanase purification (Ballance), 148
- hydrolysis of purothionins by (Jones and Lookhart), 89
- Errata
- Kroll (vol. 61, p. 490), 230
- Mazza and Campbell (vol. 62, p. 31), 230
- Peng et al (vol. 61, p. 487), 418
- Table of Contents (vol. 61, p. i), vi
- Ethanol, from fermented corn dry-milled fractions (Wu et al), 470
- Extrusion cooking, wheat gluten processed by (Lawton et al), 267
- Extrusion processing of starch, effect of whole yeast and various fractions (Lai et al), 423
- Falling number
- effect of pH, phytate, and acid treatment on sound and weathered wheat (Noll), 22
- measurement of α -amylase (Finney), 258
- shortening, analysis time for measuring sprout damage of wheat at harvest (Perten), 474
- Fermentation
- of corn dry-milled fractions (Wu et al), 470
- of field corn (VanCauwenberge), 66
- of water ferments and bread quality (Kulp et al), 55
- Fertilization, nitrogen fertilizer influence on bread properties (Paredes-López et al), 427
- Fiber, dietary, changes during fermentation and baking (Frølich and Asp), 238
- of rice grain, chemical properties (Shibuya et al), 252
- Flour
- cake; effect on shear modulus (Mizukoshi), 247
- evaluation of tests for cookie flour quality (Abboud et al), 124
- from germinated wheat; lipid composition and content (Lukow et al), 419
- surface firmness of noodles made from (Oh et al), 431
- wheat-, chemical composition and rheological properties of two Saudi Arabian varieties (Khatchadourian et al), 416
- Fractionation, of barley by abrasive milling (pearling) (Sumner et al), 112
- Gas chromatography, of propionic acid in corn (Lamkin et al), 6
- Gelatinization, sound and weathered whole meal flours, effect of phytate, pH, α -amylase, and acid treatment (Noll), 22
- Genetics, gene location of wheat endosperm proteins (Payne et al), 319
- Germination
- effect of storage at high moisture on decrease (Fernandez et al), 137
- of wheat
- analyses of changes in proteins by HPLC (Kruger and Marchylo), 1
- effect on lipid content and composition (Lukow et al), 419
- effects of fungal infection (Lookhart et al), 185
- to measure α -amylase (Finney), 258
- Gliadin
- computer-aided comparative analysis of electrophoregrams, cultivar identification (Sapirstein and Bushuk), 377
- effect of temperature and buffer systems on PAGE patterns (Lookhart et al), 19
- electrophoregrams of individual seeds (Lookhart et al), 185
- electrophoretic heterogeneity in a population of common wheats (Sapirstein and Bushuk), 392
- electrophoretic variations in Kansas wheat (Lookhart), 355
- genes; structure and expression of (Greene et al), 398
- multiple reference band standardization of gel electrophoregrams (Sapirstein and Bushuk), 372
- rapid wheat varietal identification through RP-HPLC (Bietz and Cobb), 332
- separation by one- and two-dimensional PAGE (Lafiandra and Kasarda), 314
- separation by PAGE (Khan et al), 310
- two-dimensional fractionation (Payne et al), 319
- β -D-Glucan, purification of a specific endo- β -glucanase for quantitation of (Ballance), 148
- Gluten
- protein conformation and elasticity (Tatham et al), 405
- wheat
- processing by extrusion (Lawton et al), 267
- proteins with high affinity to flour lipids (Zawistowska et al), 284
- Glutenin
- proteins; presence of endogenous carbohydrates and lipids in (Zawistowska et al), 340
- selective reduction of interpolypeptide and intrapolypeptide disulfide bonds of wheat (Kawamura et al), 279
- two-dimensional fractionation (Payne et al), 319

- HPLC (high-performance liquid chromatography)
 for analysis of amino acids at the picomole level (Lookhart and Jones), 97
 determination of anthocyanidins, hydroxycinnamate esters, catechins,
 and proanthocyanidins (Nagel), 144
 gliadins of wheats grown on sulfur-deficient soils (Lookhart and
 Pomeranz), 227
 for identification of oat cultivars, combined with PAGE (Lookhart), 345
 proteins in cereals (Bietz), 201
 rapid wheat varietal identification through gliadin analysis (Bietz and
 Cobb), 332
 reversed-phase; of avenin proteins (Lookhart and Pomeranz), 162
 separation of peptides (Jones and Lookhart), 89
 separation of purothionins (Jones et al), 327
 of wheat proteins; changes during germination (Kruger and Marchylo), 1
 Hydrophobicity, of chlorinated starch and surface protein (Seguchi), 166
- Image analysis, for wheat variety identification (Zayas et al), 478
- Instructions to authors, iii
- Instruments and instrumentation
 Instron universal testing instrument for bread firmness measurements
 (Redlinger et al), 223
 single-kernel hardness tester for wheat (Lai et al), 178
 Stenvert hardness tester for determination of corn hardness (Pomeranz et
 al), 108
- Iron, status in experimental drum-dried rice foods (Kadan and Ziegler), 154
- Letter from the editor (Pomeranz), 153
- Lipids
 distribution in gluten fractions (Zawistowska et al), 284
 endogenous effect on aggregation of glutenin proteins (Zawistowska et
 al), 340
 modification during germination of wheat (Lukow et al), 419
- Maize, methionine in seeds of (Phillips and McClure), 213
- Methods
 correlations of sensory and instrumental measures of bread texture
 (Brady and Mayer), 70
 light and electron microscopy, quantitative image analysis, and PAGE of
 wheat gliadins (Gaines et al), 25
 for measuring bread firmness (Redlinger et al), 223
 model studies of cake baking; shear modulus (Mizukoshi), 238
 purification of a *Bacillus subtilis* endo- β -glucanase (Ballance), 148
 for separating light and dark kernels of winter wheat based on density
 (Fenton et al), 67
 separation of peptides by HPLC (Jones and Lookhart), 89
 shortening falling number method for measuring sprout damage of wheat
 at harvest (Perten), 474
 toxicity analysis-, for purothionins (Jones et al), 327
- Microwave heating, starch-water model systems (Zylema et al), 447
- Milling
 abrasive, of barley (Sumner et al), 112
 associations among various soft wheat flour quality factors and milling
 quality (Gaines), 290
 dry and wet, milled corn fractions from corn treated with ethylene
 dibromide (Anderson et al), 198
 of hard red spring wheat; effect of frost damage (Dexter et al), 75
 influence of flour quality parameters and postmilling treatments on size
 of angel food and white layer cakes (Gaines and Donelson), 60
 micro experimental, of wheat, (Pomeranz et al), 47
 reduction of tempering time (Finney and Bolte), 454
 of soft wheat; distribution of deoxynivalenol (Seitz et al), 467
- Minerals
 association to dietary fiber complex, and changes during fermentation
 and baking (Frølich and Asp), 238
 interactions with proteins and phytic acid in rice bran (Champagne et al),
 231
 retention in pasta products during cooking (Ranhotra et al), 117
 solubility behaviors in rice bran (Champagne et al), 218
- Moisture
 influence on CO₂ evolution and mold growth during storage (Fernandez
 et al), 137
 wet harvesting effect on rice biodeterioration (Sahay and
 Gangopadhyay), 80
- Noodles
 cooked, surface firmness of (Oh et al), 431
 dry
 effect of flour protein, extraction rate, particle size, and starch damage
 on (Oh et al), 441
 processing variables effect on quality (Oh et al), 437
- Oats
 aleurone cell development (Peterson et al), 366
 characterization of residual proteins (Robert et al), 276
 cultivar identification by combined PAGE-HPLC (Lookhart), 345
 species identification by PAGE and HPLC (Lookhart and Pomeranz),
 162
- PAGE (polyacrylamide gel electrophoresis)
 of avenin proteins (Lookhart and Pomeranz), 162
 of gliadins of wheats grown on sulfur-deficient soils (Lookhart and
 Pomeranz), 227
 for identification of oat cultivars, combined with HPLC (Lookhart), 345
- Particle size
 associations among flour particle size and soft wheat flour quality factors
 (Gaines), 290
 of wheat (Pomeranz et al), 41
- Pasta
 method for detecting adulteration (Burgoon et al), 72
 mineral retention during cooking (Ranhotra et al), 117
 retention of B vitamins in cooked products (Ranhotra et al), 476
 spaghetti, effect of durum bran on (Kordonowy and Youngs), 301
- Phytic acid
 fate during fermentation and baking (Frølich and Asp), 238
 interactions with minerals and proteins in rice bran (Champagne et al),
 231
 solubility behaviors in rice bran (Champagne et al), 218
- Prolamin, wheat
 rapid varietal identification through RP-HPLC analysis of gliadin
 proteins (Bietz and Cobb), 332
 secondary structure (Tatham et al), 405
 two-dimensional fractionation (Payne et al), 319
- Propionic acid, detection and gas-chromatographic determination in corn
 (Lamkin et al), 6
- Protein
 analysis from maize, responses to lysine plus threonine inhibition
 (Phillips and McClure), 213
 associations among protein content and soft wheat flour quality factors
 (Gaines), 290
 bodies; development in oat aleurone (Peterson et al), 366
 in cereals, HPLC for (Bietz), 201
 characterization of triticale endosperm and germ proteins (Lupano and
 Añón), 174
 chlorinated surface-, hydrophobicity of (Seguchi), 166
 corn-, zein, isoelectric focusing and electrophoresis (Wilson), 361
 effect of varying flour protein content on size and tenderness of angel
 food and white layer (Gaines and Donelson), 63
 flour-, water level and baking quality (Skeggs), 458
 gliadin analysis by PAGE (Lookhart et al), 19
 gliadin separated by PAGE (Khan et al), 310
 gluten-, separation and characterization by PAGE, SDS-PAGE; amino
 acid composition, lipid content (Zawistowska et al), 284
 interactions with minerals and phytic acid in rice bran (Champagne et al),
 231
 method to detect nondurum proteins by electrophoresis (Burgoon et al),
 72
 oat residual-, characterization of (Robert et al), 276
 rapid wheat varietal identification through RP-HPLC analysis of
 gliadins (Bietz and Cobb), 332
 solubility behaviors in rice bran (Champagne et al), 218
 wheat hardness effect on content (Pomeranz et al), 463
 wheat
 breeding techniques (Johnson et al), 350
 changes during germination (Kruger and Marchylo), 1
- Purothionins, separation by HPLC and toxicity analysis of (Jones et al),
 327
- Rheology
 cake; shear modulus during baking (Mizukoshi), 242
 changes in cracker sponges (Doescher and Hosene), 158
 Do-Corder to study dough development (Endo et al), 272
 of dough made from two Saudi Arabian wheat flour varieties
 (Khatchadourian et al), 416
 sensory and instrumental texture profile analyses of bread texture (Brady
 and Mayer), 70
- Rice
 biodeterioration of, effect of wet harvesting (Sahay and Gangopadhyay),
 80
 bran
 mineral, protein, phytic acid interactions (Champagne et al), 231

- solubility behaviors of minerals, proteins, and phytic acid (Champagne et al), 218
- cell wall, from different part of the grain, chemical properties (Shibuya et al), 252
- drum-dried foods, iron status in (Kadan and Ziegler), 154
- Rye, α -amylase inhibitor in (Weselake et al), 120
- Scanning electron microscopy, microwave heated starch (Zylema et al), 447
- Sorghum, soluble sugars in endosperm variants (Murty et al), 150
- Starch
- catalysis of, by isoenzymes from two major groups of germinated wheat α -amylase (Kruger and Marchylo), 11
 - chlorinated-, hydrophobicity of (Seguchi), 166
 - effect of whole yeast and various fractions on properties of (Lai et al), 423
 - extrusion processing with yeast protein concentrate (Lai et al), 293
 - microwave heating (Zylema et al), 447
- Storage, CO₂ as measure of mold growth during storage (Fernandez et al), 137
- Sugar
- in cake
 - effect on shear modulus (Mizukoshi), 247
 - effect on shrinkage and shear modulus (Mizukoshi), 238
 - effect of sugar type on surface cracking of sugar cookies (Doescher and Hosoney), 263
 - soluble, in sorghum (Murty et al), 150
- Symposium, introduction to; protein improvement in cereals and oilseeds through traditional and modern genetic approaches (Bietz and Kasarda), 309
- Tortillas, sorghum and maize processing (Choto et al), 51
- Toxicity, of purothionins to insect cells (Jones et al), 327
- Triticale
- α -amylase inhibitor in (Weselake et al), 120
 - characterization of triticale endosperm and germ proteins (Lupano and Añón), 174
- Ultrastructure, of barley (Gaines et al), 35
- Vitamins, B, retention in cooked pasta products (Ranhotra et al), 476
- Wheat
- α -amylase activity in (Finney), 258
 - α -amylase inhibitor in (Weselake et al), 120
 - α -amylase isoenzymes, effect on starch components (Kruger and Marchylo), 11
 - chemical composition and rheological properties of flour from two Saudi Arabian varieties (Khatchadourian et al), 416
 - computer-based cultivar identification, class discrimination by electrophoregrams (Sapirstein and Bushuk), 377
 - damage
 - effect of frost on quality of hard red spring (Dexter et al), 75
 - to sprouts, shortening falling number analysis time for measuring (Perten), 474
 - durum, method to detect other wheats in durum products (Burgoon et al), 72
 - effect of nitrogen fertilization on bread properties (Paredes-López et al), 427
 - electrophoresis, of gliadins
 - HPLC and PAGE patterns, in USA and Australia (Lookhart and Pomeranz), 227
 - 314
 - relative mobility standardization methodology (Sapirstein and Bushuk), 372
 - variations in (Lookhart), 355
 - electrophoretic heterogeneity, characterized by computer (Sapirstein and Bushuk), 392
 - electrophoretic patterns of different wheat classes (Lookhart et al), 19
 - functional properties of, grown in Europe and Kansas (Finney et al), 83
 - germ; varietal effect on bread quality (Finney et al), 170
 - germination effect on flour lipid (Lukow et al), 419
 - gluten proteins
 - gluten elasticity relation (Tatham et al), 405
 - with high affinity to flour lipids (Zawistowska et al), 284
 - glutenin, selective reduction of interpolypeptide and intrapolypeptide bonds (Kawamura et al), 279
 - hard red spring, effect of frost damage on quality (Dexter et al), 75
 - hard winter, method for separating light and dark kernels based on density (Fenton et al), 67
 - hardness of (Pomeranz et al), 463
 - individual kernels, comparison with grain morphology and electrophoregrams (Lookhart et al), 185
 - wheat mixtures (Pomeranz et al), 41
 - hardness determination, apparatus for (Lai et al), 178
 - high-protein amphipoloid-, endosperm structural and biochemical differences between (Gaines et al), 25
 - HPLC for analysis of protein changes during germination (Kruger and Marchylo), 1
 - micromilled, reduction of tempering time (Finney and Bolte), 454
 - micromilling of, effect of variations in tempering (Pomeranz et al), 47
 - protein biosynthesis in (Greene et al), 398
 - protein
 - breeding and genetic techniques for (Johnson et al), 350
 - HPLC for (Bietz), 201
 - scab, effects on kernel structure (Lookhart et al), 185
 - soft-, distribution of deoxynivalenol in mill streams (Seitz et al), 467
 - sound and weathered-, effect of pH, phytate, and acid treatment on falling number of (Noll), 22
 - sprout damage of, shortening falling number analysis time for measuring (Perten), 474
 - two-dimensional fractionation of wheat endosperm protein (Payne et al), 319
 - variety identification
 - by image analysis (Zayas et al), 478
 - through RP-HPLC analysis of gliadins (Bietz and Cobb), 332
 - computer-based, by electrophoregrams (Sapirstein and Bushuk), 377
- Yeast
- effect on extruded starch (Lai et al), 423
 - fermentation effects on bread quality (Kulp et al), 55
 - protein concentration and extrusion with starch (Lai et al), 293
 - thermophilic-, for bread baking (Fernandes et al), 413
- Zein, nomenclature for isoelectric focusing and electrophoresis (Wilson), 361