

Book Review

Beer in Health and Disease Prevention

Edited by Victor Preedy

Publication: September, 2008

Publisher: Academic Press/Elsevier

Hard Cover: 11.1 × 8.6 × 1.9 inches, 1101 printed pages plus an additional 325 pages online

Price: \$189.95 US, available from the Elsevier or Amazon.com

ISBN: 978-0-12-373891-2

This book has been on the market for over a year, but unfortunately has been largely overlooked by the brewing industry. Its table of contents has not been well publicized in the media (probably due to the length). It is only when you take the time to read through the list of chapters, and there are 103 chapters, that you appreciate the true value of this book.

The chapters are very narrow in topic allowing the authors to bring great depth to the subject matter. Each chapter is well laid out with an abstract summarizing the chapter, a list of abbreviations and at the end of each chapter there are succinct summary points

Although a large part of the book is dedicated to 'beer in terms of health and disease prevention' as the title states, the content also encompasses areas such as beer analysis methodology, beer drinking patterns and beer production.

A very pleasant surprise when you buy this book is that there is a code in the back inside cover of the book, which lets you access another 28 chapters online. It is not clear how it was decided which chapters would be online-only as many of the online chapters are ones that you will wish were included in the hard copy for easy reference, such as Chapter 14, an excellent review on Beer Spoilage Lactic Acid Bacteria.

One of the most unusual online chapters is chapter 6, "Beer in Mental Institutions – A Historical Perspective". It relates the history of how beer was standard issue in British mental institutions in the nineteenth century and the politics behind its abolition. A well written and very interesting piece of history.

The self contained chapters have been written by a variety of experts from around the globe and Dr. Preedy is to be congratulated on amassing this material to produce such a valuable reference book.

Although it is a very long list, the chapters titles are given below, as it is crucial to read through the list to appreciate the scope of this book and to encourage you to access the online chapters after you purchase the book.

This reviewer highly recommends this reference book and believes that it is very good value for the price.

Publication no. G-2010-0420-BR

Part 1: General Aspects of Beer and Constituents

(i) Beer Making, Hops and Yeast

1. Overview of Manufacturing Beer: Ingredients, Processes and Quality Criteria
2. Non-lager Beer
3. Lager Beer
4. Traditional and Modern Japanese Beers: Methods of Production and Composition
5. Sorghum Beer: Fabrication, Nutritional Value and Impact Upon Human Health
6. Production of Alcohol-free Beer
7. Yeast Diversity in the Brewing Industry
8. The Brewer's Yeast Genome: From its Origins to our Current Knowledge
9. Flocculation in *Saccharomyces cerevisiae*
10. Use of Amylolytic Enzymes in Brewing

(ii) Beer Drinking

11. Trends of Beer Drinking in Europe
12. Trends in Beer Drinking: Rest of the World
13. Beer Consumption Patterns in Northern Ireland
14. Beer Consumption in Teenagers in Brazzaville (Congo)
15. Personality Characteristics Associated with Drinking and Beverage Preference
16. Beer and Current Mood State
17. Female Beer Drinking and the Morning After
18. Beer Consumption During Pregnancy
19. Beer and other Alcoholic Beverages: Implications for Dependence, Craving and Relapse

(iii) Beer Composition and Properties

20. Beer Composition: An Overview
21. Identification of Taste and Aroma-Active Components of Beer
22. Hop Essential Oil: Analysis, Chemical Composition and Odor Characteristics
23. Ethanol Content of Beer Sold in the US: Variation Over Time, Across States and by Individual Drinks
24. Soluble Proteins of Beer
25. Amino Acids in Beer
26. Purines in Beer
27. Beer Carbohydrates
28. Dietary Fiber in Beer: Content, Composition, Colonic Fermentability and Contribution to the Diet
29. Beer and Arabinoxylan
30. Histamine in Beer
31. Terpenoids in Beer
32. Proanthocyanidins in Hops
33. Metals in Beer
34. Minerals in Beer
35. Silicon in Beer: Origin and Concentration

- (iv) Beer Stability and Spoilage
 - 36. The Chemistry of Ageing Beer
 - 37. Trans-2-nonenal During Model Mashing
 - 38. 2-nonenal and Beta-damascenone in Beer
 - 39. Pathogens in Beer
 - 40. Fate of Pesticide Residues in Brewing

Part 2: General Effects on Metabolism and Body Systems

- (i) General Metabolism and Organ Systems
 - 41. Ethanol in Beer: Production, Absorption and Metabolism
 - 42. What Contribution is Beer to the Intake of Antioxidants in Diet?
 - 43. Antioxidant Activity of Beer?
 - 44. Maillard Reaction Products: Features and Health Aspects
 - 45. Beer Affects Oxidative Stress Due to Ethanol: A Preclinical and Clinical Study
 - 46. Alcohol Related Diseases Study Group Antioxidant Capacity of Hops
 - 47. Antioxidant Capacities of Beers: Relationship between Assays of Antioxidant Capacity, Colour and other Alcoholic and Non-Alcoholic Beverages
 - 48. Biological Properties of Beer and its Components Compared to Wine
 - 49. The Absorption and Metabolism of Phenolic Acids from Beer in Man
 - 50. Caloric Compensation in Response to Beer Consumption
 - 51. The Relationship between Exercise and Beer Ingestion in Regards to Metabolism
 - 52. Estrogenicity of Beer: The Role of Intestinal Bacteria in the Activation of Beer Flavonoid
 - 53. Effects of Beer Ingestion on Body Purine Bases
 - 54. Neuropharmacological Activity of *Humulus lupulus*
 - 55. Beer: Effects on Saliva Secretion and Composition
 - 56. Beer and Coeliac Disease
 - 57. The Effect of Beer and other Alcoholic Beverages on the Esophagus with Special Reference to Gastroesophageal Reflux
 - 58. Effects of Beer on the Gastric Mucosa as Determined by Endoscopy
 - 59. The Effect of Beer and its Non-alcoholic Ingredients on Secretory and Motoric Function of the Stomach
 - 60. The Effect of Beer and its Non-alcoholic Constituents on the Exocrine and Endocrine Pancreas as well as on Gastrointestinal Hormones
 - 61. Beer and the Liver
- (ii) Cardiovascular and Cancer
 - 62. Beer Consumption and Homocysteine
 - 63. Alcohol, Beer and Ischemic Stroke
 - 64. Beer: Is it Alcohol, Antioxidants, or both? Animal Models of Atherosclerosis
 - 65. Beer Inhibition of Heterocyclic Amine-induced Carcinogenesis

- 66. Maize Beer and Carcinogenesis
- 67. The Relationship between Beer Consumption and Lung Cancer
- 68. Phenolic Beer Compounds to Prevent Cancer
- 69. Beer Inhibition of Azoxymethane-induced Colonic Carcinogenesis

Part 3: Specific Effects of Selective Beer Related Components

- (i) General Metabolism and Organ Systems
 - 70. Biological Activities of Humulone
 - 71. Desmethylxanthohumol from Hops, Chemistry and Biological Effects
 - 72. Reproductive and Estrogenic Effects of 8-prenylnaringenin in Hops
 - 73. Regulation of Gene Expression by Hop-derived 8-prenylnaringenin
 - 74. Hop-derived Phytoestrogens Alter Osteoblastic Phenotype and Gene Expression
 - 75. Antimalarials from Prenylated Chalcone Derivatives of Hops
 - 76. Acylphloroglucinol Derivatives from Hops as Anti-inflammatory Agents
 - 77. Hops derived Inhibitors of Nitric Oxide
 - 78. Non-specific Hydroxyl Radical Scavenging Properties of Melanoidins from Beer
 - 79. Anti-obesity Effects of Dietary Isomerized Hop Extract Containing Isohumulones Generated via Peroxisome Proliferators-activated Receptors
 - 80. Moderate Beer Consumption: Effects on Silicon Intake and Bone Health
 - 81. Biolabelling of Xanthohumol in Hop Cones (*Humulus lupulus* L., Cannabaceae) with Stable and Radioactive Precursors for Biosynthetic and Metabolic Studies
- (ii) Cardiovascular and Cancer
 - 82. Epicatechin and its Role in Protection of LDL and of Vascular Endothelium
 - 83. Isohumulones from Beer Modulate Blood Lipid Status
 - 84. Flavonoids in Beer and their Potential Benefit on the Risk of Cardiovascular Disease
 - 85. Vasoactivity of Flavonols, Flavones and Catechins
 - 86. The Anti-invasive and Proapoptotic Effect of Xanthohumol: Potential use in Cancer
 - 87. Anti-cancer Property of Epicatechin Gallate in Colon Cancer Cells
 - 88. Use of Quercetin in Prostate Cancer Cells
 - 89. Beer and Prevention of Heterocyclic Amine-induced DNA Adducts and O6-methylguanine
 - 90. Techniques for Assessing Anti-cancer Effects of Beer

Part 4: Assay Methods and Techniques Used for Investigating Beer and Related Compounds

- 91. The Evaluation of Beer Ageing
- 92. Use of Electrospray Ionization Mass Spectrometry to Fingerprint Beer

93. Methods for the Characterization of Beer by Nuclear Magnetic Resonance (NMR)
94. Methods for the Vibrational Spectroscopy Analysis of Beer
95. Fluorescence Methods for the Analysis of Beer
96. Capillary Electrophoresis Methods used for Beer Analysis
97. Manual and Robotic Methods for Measuring the Total Antioxidant Capacity of Beers
98. Methods for the HPLC Analysis of Phenolic Compounds and Flavonoids of Beer
99. Methods for the Assay of Iso-alpha-acids and Reduced Iso-alpha-acids in Beer
100. Methods for Determining Biogenic Amines in Beer
101. Beer and ESR Spin Trapping
102. Method for Determining Ethanol in Beer
103. Quantification of Beer Carbohydrates by HPLC

Additional online chapters are included with the purchase of the book with the personal access code printed as a scratch off code in the back inside cover of the book. The chapters are accessed by registering your book purchase on www.beerinhealthanddisease.com and then by using your password you have access to 28 additional chapters.

1. Brewer's Yeasts Strains and Effects on Beer Composition
2. Use of Mutant Strains of Yeast in the Brewing Industry
3. Pitching Yeast and Beer Flavor
4. Bioflavoring of Beer Through Fermentation, Re-fermentation and Plant Parts Addition
5. Beer Advertising in Magazines and Its Effects on Adolescents
6. Beer in Mental Institutions – A Historical Perspective

7. The Chemical Nature of Flavor in Beer
8. Barley Seed Pathogenesis-Related (PR) Proteins – Their Importance in Beer Production
9. Biogenic Amines Index in Beers
10. Biogenic Polyamines in Beer
11. Hydride- and Non-hydride-Forming Elements in Beer Determined by Plasma Spectrometry
12. Phenolic Compounds in Beer
13. Conjugated *trans*-2-Nonenal in Beer
14. Beer Spoilage Lactic Acid Bacteria
15. Antioxidative Activity of Beer Volatiles
16. Effect of Dealcoholized Beers on the Parameters of Lipid, Oxidative and Inflammatory Metabolism
17. Beer and Peripheral Blood Mononuclear Cells
18. Beer and GABA Receptors
19. Role of Apigenin in Human Health and Disease
20. Obesity and Quercetin and Rutin Usage
21. Quercetin and Cardiovascular Protection – What is the Evidence
22. Smooth Muscle Cell Proliferation and Caffeic Acid
23. Effect of Protocatechuic Acid, a Component of Beer, on the Processes Related to Tumor Initiation and Progression
24. Anticancer Effects of Vanillin
25. Methods for the Separation of Antioxidants in Beer by Capillary Electrophoresis
26. Liquid Chromatography for the Determination of Polyphenols in Beers
27. Methods for the Determination of Metals and Trace Elements in Beer
28. Method for the Analysis of Dietary Fiber in Beer

Reviewed by Inge Russell, Ph.D., D.Sc., FIBiol, FIBD