

Book Review

Cocoa Production and Processing Technology. Emmanuel Ohene Afoakwa. CRC Press, Boca Raton, Fla. 350 p, 130 black-and-white illustrations. \$125.96 hardback. ISBN 9781466598232. CRC Press. 2014. 350 pp.

First, a few words about the author of this book. Dr. Afoakwa has an impressive background in food science, holding graduate and undergraduate degrees in food science and having vast relevant experience in food laws and regulations and membership and involvement in food and nutrition organizations. He is currently on the faculty in the Nutrition and Food Sciences Department at the University of Ghana. He has authored or co-authored many publications, including books and conference presentations and has gained high recognition at the international level for his work as a food technologist.

The book itself is a thorough treatise of the subject, including data from international organizations, such as the International Cocoa Organization, as well as hundreds of references from scientific research. At the back of the book are a list of references of all of the sources cited within the text, a list of suggested additional reading, a very helpful glossary of cocoa and chocolate-specific terminology, and an index.

Cocoa Production and Processing Technology includes a total of 16 chapters on the following topics: introduction to the world cocoa economy, history and taxonomy of

cocoa, production and consumption trends; fair-trade cocoa and organic cocoa; traditional and modern cocoa cultivation practices; pests and diseases; postharvest treatments and technologies; fermentation; drying, storage, and trading practices; mycotoxin, pesticides, and heavy metals contamination; processing technology, manufacturing technology; chocolate quality and defects; and fermentation and storage and their effects on pod quality, pulp, and bean quality. Thus, everything from background information on chocolate (different cultivars are discussed) to agricultural practices for cocoa trees, to cocoa processing and chocolate manufacturing, and to food quality are included. Flavor components are explained, as well as the various factors that can affect the flavor and quality of the chocolate.

The final two chapters on chapters on fermentation and storage on bean quality (Chapter 15 is on extended pod storage, and Chapter 16 is on reduced pod storage) are presented in the research publication format, including introduction, methods and materials, results, and discussion-conclusions. The aspects of the research are extensive. The stated objectives in Chapter 15 include: (1) Establishment of the chemical and physical composition of the pulp of preconditioned fermented and unfermented cocoa beans; (2) Evaluation of the effect of bean preconditioning on biochemical constituents during fermentation; (3) Assessment of the effect of pre-conditioning on polyphenolic compound concentration during fermentation; and (4) Determination of the effect of pulp preconditioning on the degree of fermentation. In chapter 16 the objectives

are to: (1) Investigate changes in physicochemical constituents and mineral composition of cocoa pulp during fermentation; (2) Investigate changes in physicochemical constituents and flavor precursors of cocoa bean pulp during fermentation; (3) Investigate changes in polyphenol constituents and free fatty acids of cocoa pulp of Ghanaian beans during fermentation; and (4) Investigate the effects of pulp pre-conditioning and fermentation on the fermentative quality of Ghanaian cocoa beans.

Throughout the book, the many tables, line drawings, black-and-white photographs and charts and graphs on nearly every page are quite useful in clarifying or illustrating information from the text. The writing is clear, and the author is a well-versed authority who succeeds at conveying a vast array of cocoa and chocolate-related information. Some of the discussion and biochemical terminology in the scientific research chapters may be challenging to those without a biology-related background. Nevertheless, it is an interesting book to read and would make a useful reference for anyone who wanted to learn more about cocoa and chocolate, including the agricultural production of cocoa trees, postharvest treatment of cocoa pods and beans, fermentation and drying of cocoa beans, and manufacturing and processing of chocolate.

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