

QUALITY PLAN DESIGN TO MINIMIZE DEFECTS IN DRIED BANANA PRODUCTION

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**DEPARTMENT OF AGROINDUSTRIAL TECHNOLOGY
FACULTY OF AGRICULTURAL TECHNOLOGY
IPB UNIVERSITY
BOGOR
2025**



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ABSTRACT

MUHAMMAD IHZA NUGRAHA PRATAMA. Quality Plan To Minimize Defect in Dried Banana Production. Supervised by MULYORINI RAHAYUNINGSIH and ENDANG WARSIKI.

Sugar bloom, the crystallization of sugars on the surface of dried bananas, is a recurring quality defect that affects the visual appeal and perceived freshness of Hillkoff Co., Ltd.'s dried banana products. This study aimed to develop a quality plan and revised standard operating procedure (SOP) to reduce sugar bloom occurrence and improve overall product stability. Field observations and focus group discussions were conducted to identify key issues across the production line. Root cause analysis revealed that inconsistent post-drying storage conditions and ineffective soaking treatments were the primary contributors to sugar bloom formation. Two interventions were proposed and tested: the addition of 0.35% citric acid in the soaking solution and controlled cold storage at 5°C and 65% relative humidity. Both methods showed significant effectiveness in minimizing sugar crystallization over a 45-day storage period. A quality scoring system was also developed to quantitatively assess sugar bloom severity. Results indicated that implementing these strategies can greatly enhance product consistency, extend shelf life, and reduce waste. The proposed quality plan provides a practical model for continuous improvement and can be adapted by other small- to medium-scale food producers facing similar post-processing quality challenges.

Keywords: dried banana, quality scoring, SOP, sugar bloom



ABSTRAK

MUHAMMAD IHZA NUGRAHA PRATAMA. Rencana Mutu untuk Meminimalkan Cacat dalam Produksi Pisang Kering. Dibimbing oleh MULYORINI RAHAYUNINGSIH dan ENDANG WARSIKI.

Sugar bloom, yaitu kristalisasi gula pada permukaan pisang kering, merupakan cacat mutu yang sering terjadi dan memengaruhi daya tarik visual serta kesan kesegaran produk pisang dried dari Hillkoff Co., Ltd. Studi ini bertujuan untuk mengembangkan rencana mutu dan revisi standar operasional prosedur (SOP) guna mengurangi kejadian sugar bloom dan meningkatkan stabilitas produk secara keseluruhan. Observasi lapangan dan diskusi kelompok terarah dilakukan untuk mengidentifikasi permasalahan utama di sepanjang lini produksi. Analisis akar penyebab mengungkapkan bahwa kondisi penyimpanan pasca-pengeringan yang tidak konsisten serta perlakuan perendaman yang kurang efektif merupakan kontributor utama terbentuknya sugar bloom. Dua intervensi diusulkan dan diuji: penambahan 0,35% asam sitrat dalam larutan perendaman dan penyimpanan dingin terkendali pada suhu 5°C dan kelembapan relatif 65%. Kedua metode terbukti efektif secara signifikan dalam meminimalkan kristalisasi gula selama periode penyimpanan 45 hari. Sistem penilaian mutu juga dikembangkan untuk menilai tingkat keparahan sugar bloom secara kuantitatif. Hasil menunjukkan bahwa penerapan strategi ini dapat meningkatkan konsistensi produk, memperpanjang umur simpan, dan mengurangi limbah. Rencana mutu yang diusulkan memberikan model praktis untuk perbaikan berkelanjutan dan dapat diadaptasi oleh produsen makanan skala kecil hingga menengah yang menghadapi tantangan kualitas pasca-pemrosesan serupa.

Kata kunci: sale pisang, penilaian mutu, SOP, sugar bloom



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QUALITY PLAN TO DESIGN TO MINIMIZE DEFECTS IN DRIED BANANA PRODUCTION

MUHAMMAD IHZA NUGRAHA PRATAMA

Undergraduate Final Project
One of the requirements for obtaining a Bachelor of Engineering
Degree in Agro-Industrial Engineering Study Program

**DEPARTMENT OF AGROINDUSTRIAL TECHNOLOGY FACULTY OF
AGRICULTURAL TECHNOLOGY AND ENGINEERING
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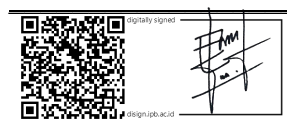
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Date of Exam:
11th of August 2025

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PREFACE

This thesis is a part of capstone project in Faculty of Agricultural Technology, department of Agroindustrial Engineering. The author extends sincere praise and gratitude to Allah Subhanahu wa Ta'ala for His abundant blessings, which have enabled the successful completion of this scientific work. The research, titled "Quality Plan Design to Minimize Defect in Dried Banana Production" was conducted from April 2025 to July 2025. The completion of this report was made possible through the support and contributions of many individuals, to whom the author is deeply grateful:

1. Agus Iman Rifai (Father), Nofia Widyarin (Mother), Luthfi Dahlan (Grandfather), for their unwavering support throughout the author's life and academic journey.
2. Dr. Ir. Mulyorini Rahayuningsih, M.Si., as the academic advisor and final project supervisor, for her continuous guidance and encouragement throughout the completion of this report
3. Prof. Dr. Endang Warsiki, S.TP., M.Si, and Dr. Chananpat Rardniyom, B.Sc., M.S, as supervisors for the final project, for providing the opportunity and facilitating the author's research at Hillkoff Co., Ltd, Chiang Mai, Thailand. Their input and direction during the project were invaluable and greatly appreciated.
4. Naruemon Taksaudom, Noi Jumjee, Wiraphon Sisopha, Charinee Poonsuk, and the entire Hillkoff family, for their warm welcome, generous assistance, and accommodations throughout the author's stay in Thailand.
5. All lecturers, academic staff, Laboratory Technicians, Lab Assistants, and UPT Department TIN staff, who have supported the author throughout his studies at IPB University.
6. Manda Lavina Nathania, Muhammad Fauzan Al-Fahrizi, Naufal Faadhil Hanif as teammates in the PRODUTA group, for their cooperation and shared effort in completing this final project.
7. Edgar Azzano Aljudavi, Nabil Muzhaffar, Anastasia Fidella Carmelita, and Muhammad Irfan Fauzi, classmates from K3 TIN (sleepy Kaythree), who have been supportive companions throughout the author's university journey.
8. Seluruh teman TIN 58 (Tinvincible) who have shared many meaningful moments and experiences during the author's time in TIN.

May this scientific work serve as a valuable resource for academic development and contribute meaningfully to the advancement of knowledge.

Bogor, July 2025

Muhammad Ihza Nugraha Pratama



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