# QUALITY PLAN DESIGN TO MINIMIZE DEFECTS IN DRIED BANANA PRODUCTION

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Bogor, July 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

# QUALITY PLAN TO DESIGN TO MINIMIZE DEFECTS IN DRIED BANANA PRODUCTION

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Bogor, July 2025

*Muhammad Ihza Nugraha Pratama*

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