PatchouLink

Transparent Supply Chain for Aceh Patchouli Oil

Overview

PatchouLink is a blockchain-based platform designed to increase transparency, accountability, and efficiency in the Aceh patchouli oil supply chain — connecting farmers, laboratories, producers, and consumers. PatchouLink records batch metadata, lab verification (if available), and distribution trails so buyers can verify authenticity and quality via QR Trace.

Data & Context

According to InfoPublik (2024), Aceh's patchouli oil production reached **1.27 tons** with a turnover of **IDR 1.1 billion**, cultivated across **100 points** on **5.9 hectares** under the BSI initiative. Despite its potential, counterfeiting (adulteration with turpentine oil) threatens quality and market trust.

Scientific Foundation

A study by Yovita Amanda et al. (Universitas Syiah Kuala, 2023) showed that Near Infrared Reflectance Spectroscopy (NIRS) combined with Principal Component Regression (PCR) can predict turpentine mixtures in patchouli oil with high accuracy ($r = 0.90$; $R^2 = 0.82$). PatchouLink integrates this verification process with blockchain traceability.

How It Works

1. Farmer Stage: Each farmer registers harvest data (origin, coordinates, date).
2. Lab Verification: Samples are analyzed; results uploaded and hashed on-chain.
3. Blockchain Record: Lab results and batch metadata anchored on blockchain.
4. Product Distribution: Producers and traders register batch movements.
5. Consumer Access: Buyers scan QR to trace authenticity, batch details, and sustainability info.

Alignment with Regulation

PatchouLink aligns with POJK No. 13/POJK.02/2018 on Digital Financial Innovation (IKD), particularly Article 2(2), which emphasizes financial inclusion, consumer protection, and regulatory compliance.

Impact

Empower smallholder farmers through price transparency

Strengthen quality assurance and anti-counterfeiting

Support inclusive digital finance (EKI ecosystem in Aceh)

Promote sustainable, traceable exports of Indonesian essential oils

Team

Achmad Atha Zayyan — Lead Developer & Project Manager
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