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PRODUCT INFORMATION

**MARKHERB®
MITRAGYNINE-RICH
EXTRACTS**



MADE AND PREPARED BY EBM SCITECH

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EBM Scitech is a research-based company located in **Bandung**, West Java, **Indonesia**, established in 2020. Our core business is providing Research and Development (R&D) services in the field of phytochemistry, as well as consultancy service for other companies looking to develop new products or validate and/or improve the quality of their existing products, particularly in the herbal industry.

To support our R&D activities, EBM Scitech is equipped with advanced laboratory instruments, such as LC-HRMS, UPLC-MS/MS, HPLC, and flash chromatography. With a primary focus on herbal products, EBM Scitech also develops herbal-based spin-off brands that produce and market various types of products utilizing the rich plant biodiversity of Indonesia, one of which is **MarkHerb**.

Bandung, Indonesia





MarkHerb is one of EBM Scitech's product brands focused on developing phytochemical products, including marker compounds or Certified Reference Materials (CRM), as well as pharmaceutical natural ingredients. In addition, MarkHerb also provides specific laboratory analysis services in the herbal field, both for research and industry purposes, such as the identification and quantification of phytochemical compounds in plant samples or herbal products. As a spin-off, MarkHerb markets various innovations from EBM Scitech, particularly products in the form of extracts, enriched fractions, or pure compounds derived from herbal plants. Kratom Extract and Mitragynine-rich extracts are examples of research and innovation products from EBM Scitech that are now available as natural ingredients.

PRODUCT INFORMATION

MARKHERB® MITRAGYNINE-RICH EXTRACTS

Kratom

Kratom (*Mitragyna speciosa*) is a tree in the coffee family, found in Indonesia and neighboring countries. In Indonesia, Kratom is known by the nickname "Heavenly Leaf from Kalimantan" because of its benefits as a traditional medicine.

In Southeast Asia, people traditionally have chewed its leaves or made them into a tea that is used to fight fatigue and improve work productivity.

Kratom has also traditionally been used during religious ceremonies and to treat symptoms such as pain and diarrhea, sometimes as a substitute for opium.

The use of Kratom leaves in the formulation of herbal supplements is becoming increasingly popular. Experts consider kratom an opioid-like substance because it affects your brain's opioid receptors.

In low doses, it's a stimulant. But in high doses, it can relieve pain like opioids do. Just like opioids, kratom can be addictive. People who use kratom have reported both stimulant-like effects (increased energy, alertness, rapid heart rate) and effects like those of opioids and sedatives (relaxation, pain



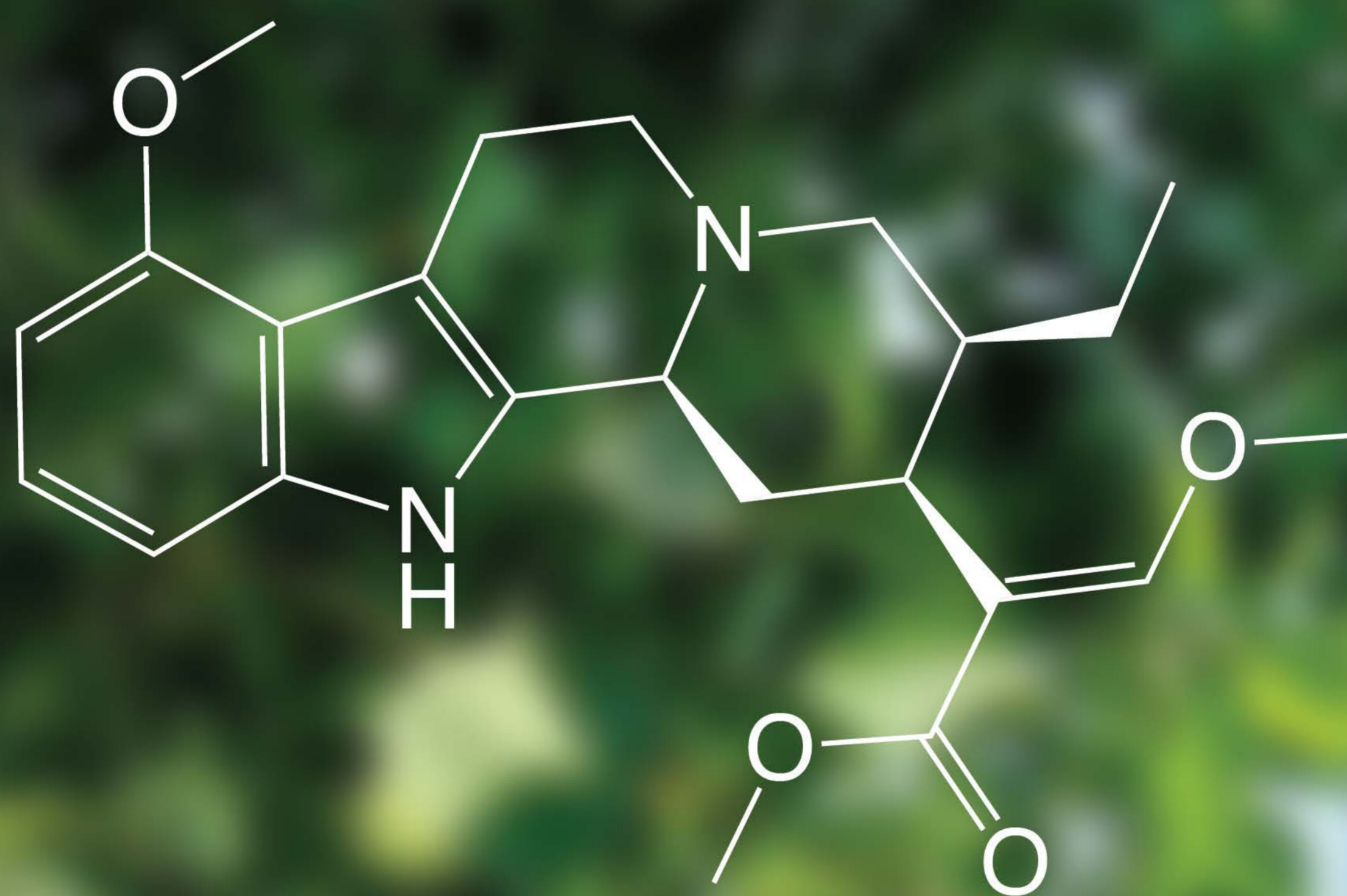
relief, confusion). Some people in Western countries use kratom to try to treat pain or manage opioid withdrawal symptoms¹⁻⁸.

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MARKHERB® MITRAGYNINE-RICH EXTRACTS

Mitragynine

Kratom leaves contain more than 40 types of alkaloid compounds beneficial to the body, including Mitragynine, 7-hydroxymitragynine, Speciociliatine, Corynantheidine, Speciogynine, Paynantheine, dan Mitraphylline. The most well-studied compounds related to kratom are mitragynine and 7-hydroxymitragynine⁹. The two compounds are known to interact with opioid receptors in the brain. Both activate mu-opioid receptors (specific molecular structures on the surface of nerve cells), but the resulting effects only partially compare to those of opioids like heroin or oxycodone¹⁰. Compared to Methadone, Mitragynine provides longer-lasting effects and has lower toxicity due to its more stable binding to the mu-opioid receptors¹¹.



Mitragynine (C₂₃H₃₀N₂O₄)

Some research suggests that Mitragynine and 7-hydroxymitragynine may not cause some of the more serious adverse effects associated with opioid use such as respiratory depression (trouble breathing) that can occur during a life-threatening opioid overdose¹². Scientists also have observed that Mitragynine may bind to adrenergic receptors, serotonin receptors and dopamine receptors, which may be responsible for some of the arousing effects some people who use kratom report experiencing^{9,13,14}.

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MARKHERB® MITRAGYNINE-RICH EXTRACTS

Suspected Health Benefits of Kratom

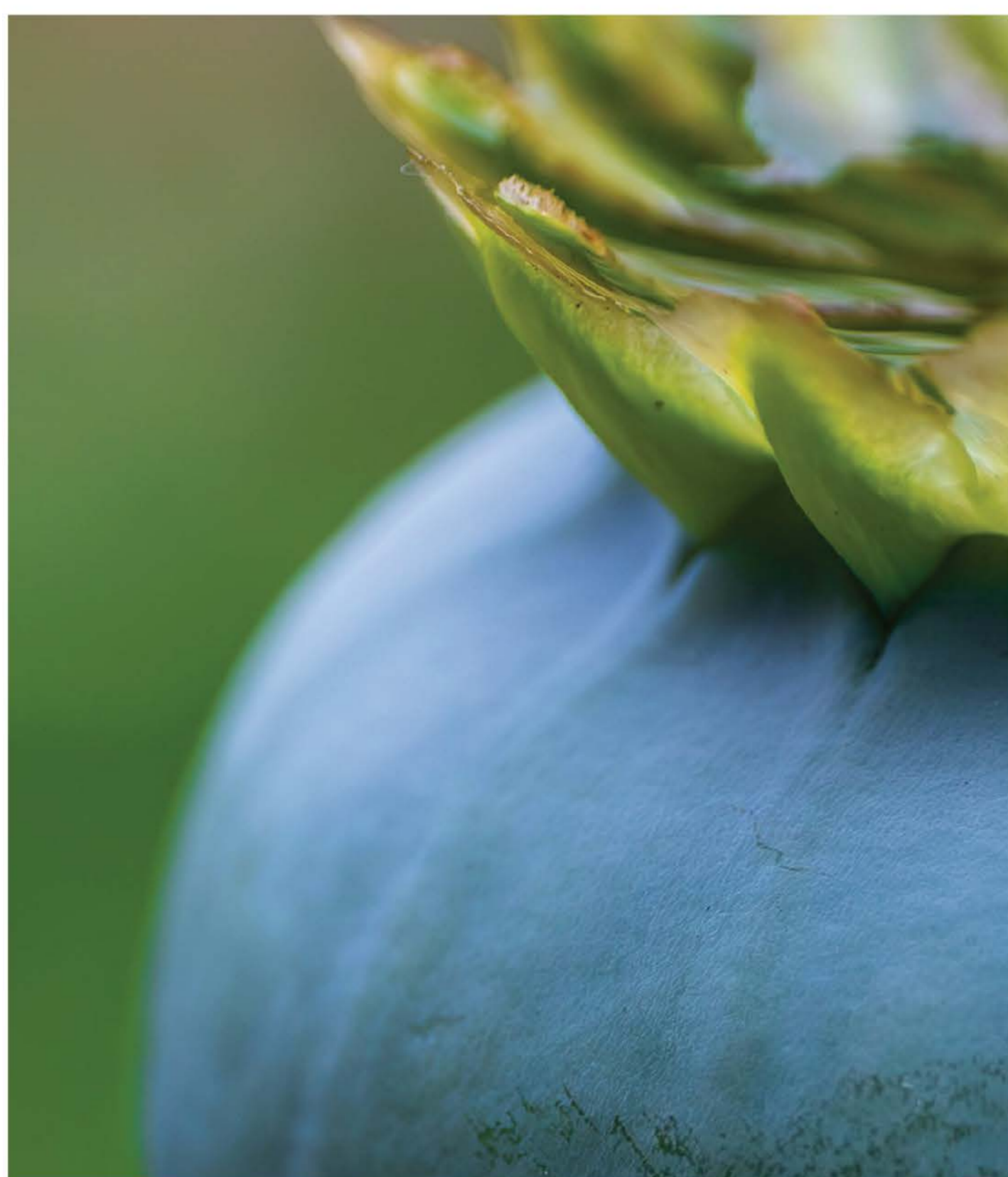
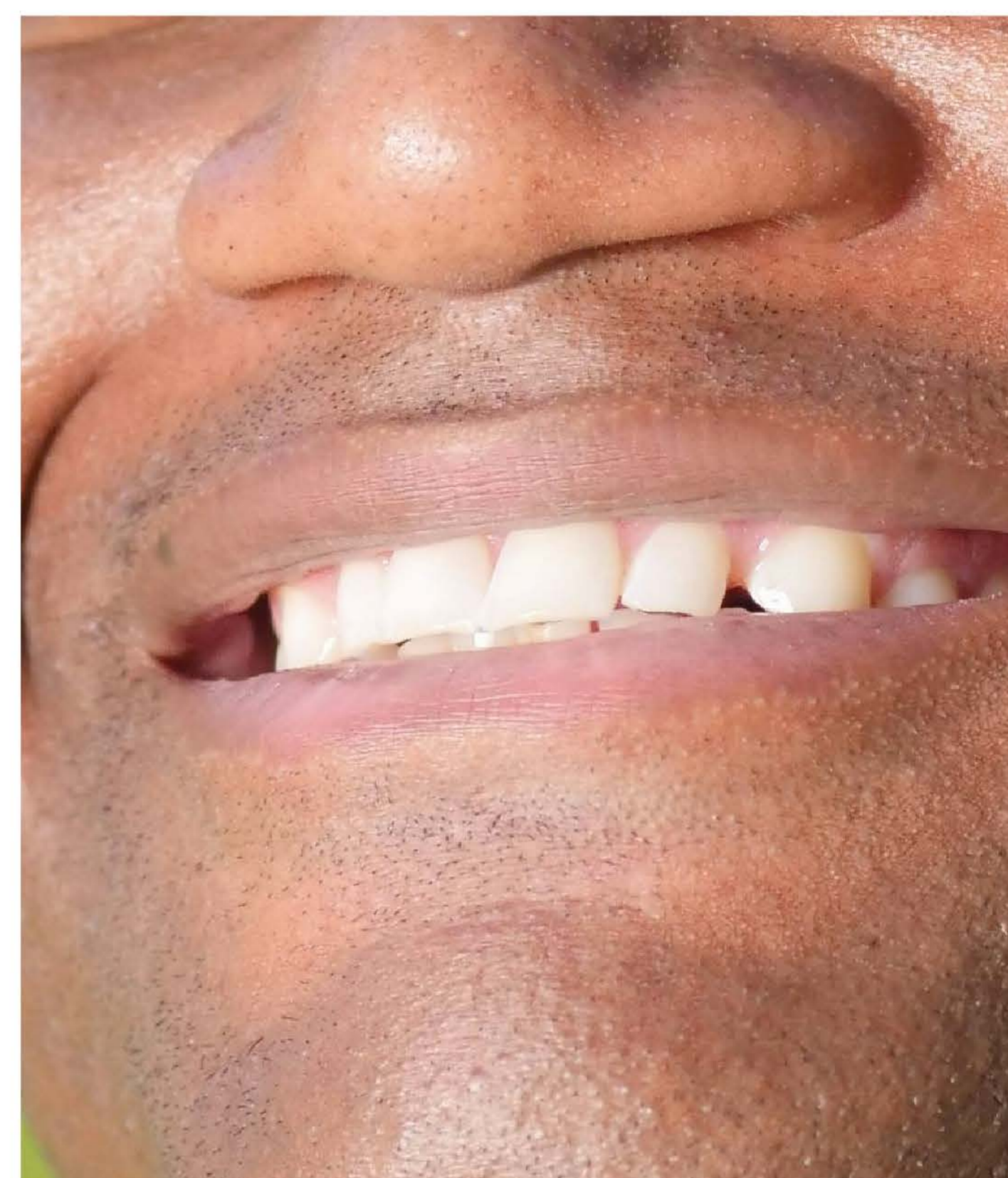


Kratom for pain

Kratom may be effective for easing chronic pain, as it works by attaching to opioid receptors. One compound found in kratom, 7-hydroxymitragynine, is 13 times more potent than morphine. Although kratom targets opioid receptors just like morphine and codeine do, it is considered an atypical opioid. Kratom selectively inactivates specific signals, which may explain the more tolerable side effects compared to typical opioids.

Kratom for boosting mood

Kratom may have mood-enhancing effects. Some reports suggest that kratom may be an effective treatment for opioid addiction. Some people use it to help ease the withdrawal symptoms of morphine and ethanol. Early studies suggest that kratom may have potential as an antidepressant and a hunger suppressant. In one animal study, researchers determined that kratom lowers corticosterone levels in mice. Increased corticosterone levels are just one of the changes in brain chemicals that can be seen in depression. Furthermore, in another study with rats, kratom supplementation suppressed hunger by inhibiting the hypothalamus, the part of the brain responsible for appetite and cravings. More research on humans is needed to see if kratom has similar effects.



Kratom for opiate withdrawal

Some people have reported that kratom can help with self-treatment of opioid withdrawal symptoms. It has also been promoted as a remedy or cure for opioid addiction. But there's no approved use of kratom for these purposes. Experts need to look deeper into this to understand if it can actually help with withdrawal.

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MARKHERB® MITRAGYNE-RICH EXTRACTS

KRATOM FOR POTENTIAL MEDICINAL USES

While kratom has not been proven safe or effective for any medical purpose, kratom has been used in traditional medicine in some countries^{9,15}, and many people who use kratom report doing so to self-medicate for pain, anxiety, depression, substance use disorders and substance withdrawal^{1,3,9}. Studies in animal models suggest kratom and related compounds potentially have other therapeutic properties, such as antidepressant and pain-relieving properties, that may warrant further study^{9,17}. Studies on kratom and kratom compounds warrant further study as experimental treatments for substance use disorders, specifically opioid use disorder^{17,18}. Such treatments are urgently needed to help curb the drug overdose epidemic in the world.

PRODUCT INFORMATION

MARKHERB® MITRAGYNYNE-RICH EXTRACTS

Our Products

We deem our company to be a producer of high-quality, standardized kratom extract products focused on Mitragynine content. Our product line consists of a range of Mitragynine-rich kratom extracts in different grades, starting from $\geq 30\%$, $\geq 50\%$, and $\geq 70\%$ purity.

Other Kratom brands often refer their products as %Mitragynine in **TOTAL ALKALOIDS** content. **OUR** products are different. When we say Mitragynine X%, we mean **TOTAL MITRAGYNYNE** weight in **EXTRACT** (w/w), e.g., “50% Mitragynine content” in our products means 50mg of Mitragynine in 100mg of extract.



Mit30 Kratom Extract with $\geq 30\%$ Mitragynine

Main Specification

- Mitragynine Content : $\geq 30\%$
- Appearance : Greenish brown; powder
- Odor : Characteristic odor
- Quantity availability : Bulk



Mit50 Medium-Grade Kratom Enriched Extract with $\geq 50\%$ Mitragynine

Main Specification

- Mitragynine Content : $\geq 50\%$
- Appearance : Brown; powder
- Odor : Characteristic odor
- Quantity availability : Bulk



**Mit70
High-Grade Kratom Enriched
Fraction with $\geq 70\%$
Mitragynine**

Main Specification

Mitragynine Content : $\geq 70\%$
Appearance : Brick Orange;
powder
Odor : Characteristic
odor
Quantity availability : Bulk

Product Identification

Brand : MarkHerb®
Company : EBM Scitech
Company Legal Name : PT. EBM Saintifik dan Teknologi
(EBM Scientific and Technology Ltd.)
Country of Origin : Indonesia
Product Classification : Extract; enriched extract; enriched fraction
Uses : Natural ingredients for food, herbal, health
supplements, and pharmaceuticals

MARKHERB® MITRAGYNINE-RICH EXTRACTS

WHY CHOOSE OUR PRODUCTS?

Raw materials are sourced from Kalimantan forests, where Indonesia's Kratom grows abundantly and sustainably

Produced using eco-friendly methods implemented with good manufacturing processes, ensuring environmental responsibility and safety

Analyzed using valid scientific methods and are monitored with strict QC standards

Focused only on the Mitragynine contents, thus ensuring the products specification regardless of their production batches and source locations

Accompanied with accurate Certificate of Analysis (CoA) to ensure that your required specifications are met

Our company retains the required licenses to export Kratom products and its derivatives, making us a legitimate partner for your Kratom businesses

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