

# Vietnam Artemisinin Acid Market By Type (Antimalarial Injections and Antimalarial Tablets), By Region, Competition, Forecast and Opportunities, 2020-2030F

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## Abstracts

Vietnam Artemisinin Acid Market was valued at USD 2.01 Million in 2024 and is expected to reach USD 2.58 Million by 2030 with a CAGR of 4.23% during the forecast period. The growth of the Vietnam Artemisinin Acid Market is primarily driven by the increasing demand for artemisinin-based combination therapies (ACTs) in the fight against malaria. As the prevalence of malaria remains a significant health issue in Vietnam, the need for effective treatments is high. Artemisinin acid, a key precursor in the synthesis of artemisinin, plays a crucial role in producing ACTs, making it vital for the pharmaceutical industry. The focus on cost-effective and sustainable production of artemisinin, as well as ongoing research into the use of artemisinin acid for other medical applications, such as cancer treatments, further drives market growth. Government initiatives to combat malaria and support the local pharmaceutical industry also contribute to the increasing demand for artemisinin acid in Vietnam.

### Key Market Drivers

#### Rising Prevalence of Malaria

The increasing prevalence of malaria in Vietnam is one of the most significant drivers of the Artemisinin Acid Market. Despite considerable efforts to combat the disease, malaria remains endemic in many parts of the country, particularly in rural and remote regions. According to the World Health Organization (WHO), malaria continues to be a major health concern in Southeast Asia, including Vietnam. In 2022, Vietnam reported 412 cases of malaria, including vivax, falciparum, and mixed types. P. vivax accounted for

approximately 40% of these cases (163 out of 412). The malaria situation in Vietnam is complex, with variations in incidence across different regions and among various populations. The government has launched extensive programs to combat malaria through preventive measures, such as mosquito nets and insecticides, alongside treatments like artemisinin-based therapies. As the demand for ACTs rises in response to the need for effective malaria treatments, the demand for artemisinic acid, the precursor to artemisinin, also increases, thereby driving market growth. The Vietnamese pharmaceutical industry is heavily invested in the development of affordable and sustainable solutions for the malaria epidemic, further enhancing the demand for artemisinic acid.

### Support from Government and International Health Organizations

The government of Vietnam, in collaboration with international health organizations such as the World Health Organization (WHO) and the Global Fund to Fight AIDS, Tuberculosis, and Malaria, plays a crucial role in driving the demand for Artemisinic acid. The Government of Vietnam is committed to eliminating malaria by 2030. NIMPE is actively collaborating with regional IMPEs, provincial health departments, and global health partners to achieve this objective. These organizations have contributed to various public health campaigns aimed at eradicating malaria. In addition to funding and resources for treatment programs, the Vietnamese government has been promoting the local production of ACTs to reduce dependence on imported medicines. By encouraging domestic production and setting up favorable policies for the pharmaceutical industry, the government has ensured a steady demand for artemisinic acid. As these initiatives continue to gain momentum, the market for artemisinic acid in Vietnam will see further expansion.

### Cost-Effectiveness of Artemisinic Acid Production

The relatively lower cost of producing Artemisinic acid compared to its derived compound, artemisinin, plays a crucial role in driving the growth of the Vietnam Artemisinic Acid Market. Artemisinic acid is a key precursor in the production of artemisinin, a critical active ingredient used in artemisinin-based combination therapies (ACTs), which are the first-line treatment for malaria. The traditional method of producing artemisinin, which involves extracting it from the leaves of the *Artemisia annua* plant, is often associated with high costs due to the labor-intensive cultivation process, dependence on environmental factors, and fluctuations in agricultural yields. In contrast, artemisinic acid can be synthesized more efficiently and cost-effectively through various biotechnological processes, such as microbial fermentation and

synthetic biology.

One of the most significant advantages of producing artemisinic acid is its ability to be synthesized in the laboratory using biotechnological methods, which are not only cost-effective but also sustainable. This shift towards biotechnological production has made it easier for manufacturers to generate large quantities of artemisinic acid at a lower price point, reducing reliance on plant-based sources and mitigating the risks associated with agricultural variability. Microbial fermentation, which is a widely adopted method in the production of artemisinic acid, involves the use of genetically engineered microorganisms, such as yeast or bacteria, to convert simple sugars into artemisinic acid. This process is scalable, environmentally friendly, and significantly more efficient than traditional methods. Advancements in synthetic biology have further improved the production efficiency of artemisinic acid, allowing for even greater yields with fewer resources.

### Increasing Demand for Malaria Treatments in Southeast Asia

The demand for effective malaria treatments, including artemisinin-based combination therapies, is not only limited to Vietnam but is also increasing across Southeast Asia. Vietnam serves as a critical market in this region, where malaria continues to present a public health challenge. In a study titled, “Risk factors for malaria in high incidence areas of Viet Nam: a case–control study”, a survey was conducted with 1,000 malaria-positive cases and 1,000 malaria-negative controls, matched by age and gender. The participants self-presented at commune health stations (CHS) in Binh Phuoc, Dak Nong, and Dak Lak Provinces. Malaria diagnoses were confirmed using microscopy, rapid diagnostic tests, and PCR. Participants were interviewed about 50 potential malaria risk factors, including occupation, forest visits, travel history, healthcare-seeking behavior, and previous use of anti-malaria interventions. Trained government health workers enrolled the participants, and the samples were analyzed in government laboratories in Vietnam.

The rising resistance to traditional malaria treatments in certain parts of Southeast Asia has made artemisinin-based therapies even more important. As the region's demand for ACTs grows, the need for artemisinic acid, the key raw material in the production of these therapies, is set to increase. The growing regional demand for these life-saving treatments will contribute significantly to the expansion of the artemisinic acid market in Vietnam.

### Growing Focus on Sustainability and Self-Sufficiency

There is a growing emphasis on sustainability and self-sufficiency in Vietnam's healthcare sector, which has become a critical part of the country's broader economic and social development strategies. Over the past few years, the Vietnamese government has made concerted efforts to address the nation's dependency on foreign pharmaceutical imports, which are often costly and subject to global supply chain disruptions. This increased focus on local pharmaceutical production is seen as a vital step in strengthening the country's healthcare system, reducing reliance on external markets, and ensuring that essential medicines remain accessible and affordable for all citizens, particularly those in rural and underserved areas.

One of the key components of this drive towards self-sufficiency is the local production of artemisinin and other active pharmaceutical ingredients (APIs), such as artemisinic acid. Artemisinin-based combination therapies (ACTs) are considered the gold standard in malaria treatment, and their widespread availability is crucial for public health, particularly in malaria-endemic regions like Vietnam. Historically, Vietnam has relied on the import of artemisinin and related compounds for the production of ACTs, which has led to vulnerability in the supply chain. The price fluctuations of these imported ingredients have made it difficult for the Vietnamese government to guarantee affordable treatments for its population, especially in the face of rising demand for antimalarial drugs.

### Expanding Role of Artemisinic Acid in Other Medical Applications

In recent years, researchers have explored the potential of artemisinic acid in other medical applications beyond malaria treatment, such as cancer therapies and antimicrobial treatments. This expanding research into the broader therapeutic uses of artemisinic acid is expected to drive demand in the coming years. As new applications for artemisinic acid are discovered, the market for the compound will likely experience growth, as the pharmaceutical industry diversifies its use of this vital precursor. If clinical studies confirm the efficacy of artemisinic acid in treating other diseases, it will open new markets and increase the global demand for artemisinic acid, including in Vietnam.

### Key Market Challenges

#### Regulatory and Quality Control Issues

The Vietnam Artemisinic Acid Market also faces significant challenges related to regulatory frameworks and quality control. As the market grows and artemisinic acid

production ramps up, ensuring consistent product quality becomes increasingly difficult. This challenge is compounded by the complexity of the regulatory environment surrounding the production, sale, and distribution of pharmaceutical ingredients like artemisinic acid. Regulatory requirements for the approval of artemisinin-based combination therapies (ACTs) and other pharmaceuticals containing artemisinic acid can vary widely, both within Vietnam and in international markets. Navigating these regulatory requirements often involves long approval timelines, stringent testing protocols, and high compliance costs for manufacturers.

Ensuring that artemisinic acid meets the required pharmaceutical-grade quality is essential, particularly since it is a crucial component in the formulation of ACTs used in the treatment of malaria. Any inconsistencies or deviations in the quality of artemisinic acid can compromise the efficacy of the final drug product, leading to suboptimal treatment outcomes for patients. This is particularly concerning in regions like Vietnam, where access to high-quality malaria treatments can significantly affect public health. Inadequate quality control mechanisms can also lead to wasted resources and damage the reputation of local producers in the global market.

The lack of a standardized framework for quality assurance in the production of artemisinic acid is a challenge that has hindered the full potential of the market. Small-scale producers or those operating without internationally recognized certifications may struggle to meet the standards required for domestic and international trade. This makes it difficult for them to gain a competitive edge in the market, particularly when competing with international manufacturers that adhere to strict Good Manufacturing Practice (GMP) standards. Strengthening the regulatory framework and establishing robust quality control processes for artemisinic acid production would go a long way in addressing these challenges and ensuring that the market can meet demand for high-quality, affordable malaria treatments.

### High Initial Investment in Biotechnological Infrastructure

While biotechnological production of artemisinic acid via microbial fermentation offers several advantages in terms of cost-effectiveness and sustainability, it requires significant initial investment in infrastructure, research, and development. The transition from traditional plant-based extraction methods to biotechnological processes is capital-intensive, with substantial costs associated with the establishment of fermentation facilities, purchase of specialized equipment, and recruitment of skilled labor. For local manufacturers in Vietnam, the lack of financial resources or access to capital presents a significant barrier to entry into the biotechnological production space.

Setting up biotechnological infrastructure requires advanced expertise in areas such as genetic engineering, bioprocessing, and industrial microbiology, as well as significant investment in research and development to optimize production strains and fermentation processes. Without access to the necessary funding or technical knowledge, many small- to medium-sized manufacturers may struggle to compete in the growing market for artemisinic acid. The upfront costs involved in upgrading production facilities and adopting state-of-the-art technologies for microbial fermentation may deter potential entrants, leaving the market in the hands of a few dominant players.

Operating microbial fermentation systems requires ongoing investments in maintenance, quality control, and process optimization. Manufacturers must continue to invest in research to improve yields and reduce costs, which can be a financial strain for those without access to adequate funding sources. This lack of capital investment can limit the scalability of local production, making it challenging for the Vietnamese pharmaceutical industry to meet the growing demand for artemisinic acid and artemisinin-based therapies. To address this challenge, the government and private sector must provide financial support and incentives to encourage investment in the biotechnological infrastructure required for large-scale production.

## Key Market Trends

### Advances in Biotechnology and Sustainable Production Methods

Advances in biotechnology and sustainable production methods have significantly impacted the production of artemisinic acid. Biotechnological innovations, such as the use of genetically modified yeast and other microorganisms for the fermentation of artemisinic acid, have made it possible to produce artemisinic acid in large quantities at a lower cost. These advances allow for a more sustainable and scalable production of artemisinic acid, ensuring a steady and reliable supply for the pharmaceutical industry. In Vietnam, where there is a strong push for environmentally friendly and cost-efficient solutions, the adoption of these biotechnological methods is driving the growth of the artemisinic acid market. As the production of artemisinic acid becomes more efficient, it will lead to lower prices for ACTs, making them more accessible to populations in need.

### Rising Investment in Pharmaceutical R&D

The Vietnamese pharmaceutical industry has seen increasing investment in research and development (R&D), particularly in the development of new and more effective

malaria treatments. With the growing recognition of the importance of artemisinin acid in the production of ACTs, many pharmaceutical companies in Vietnam are investing in R&D to improve the synthesis and production processes. These investments not only enhance the local production capabilities but also promote innovations that could make treatments more effective and accessible. This expanding focus on pharmaceutical R&D, particularly in the malaria treatment space, is a significant driver for the growth of the artemisinin acid market, as it leads to higher demand for the precursor compound.

## Segmental Insights

### Type Insights

Based on the Type, antimalarial tablets are currently dominating the market. This dominance is primarily due to their convenience, cost-effectiveness, and widespread accessibility compared to alternative forms of treatment like antimalarial injections. Antimalarial tablets are widely preferred because they offer several practical advantages in comparison to injectable formulations. They are more user-friendly and can be easily administered by patients at home, reducing the need for healthcare professionals to be involved in the treatment process. This is particularly important in rural and remote areas of Vietnam, where access to healthcare facilities and trained medical staff may be limited. The simplicity of oral administration helps ensure that patients are more likely to complete the prescribed treatment regimen, improving compliance and treatment outcomes. The production and distribution of antimalarial tablets are more cost-effective compared to injectable forms, which require more specialized infrastructure and are generally more expensive to manufacture.

From an economic standpoint, antimalarial tablets are a more affordable option for both patients and healthcare systems, particularly in low-income regions. This makes them more accessible to a larger segment of the population, aligning with the Vietnamese government's efforts to provide affordable and effective malaria treatments to combat the disease, which remains a significant public health issue in the country. The use of artemisinin acid in the synthesis of artemisinin, which is then used in ACTs for tablet form, makes the production of oral malaria treatments more scalable and economically viable. As the demand for ACTs continues to grow, driven by the ongoing prevalence of malaria, the artemisinin acid market is increasingly centered around the tablet formulation.

## Regional Insights

In the Vietnam Artemisinin Acid Market, Southern Vietnam was the dominant region in terms of both production and demand for artemisinin acid. This dominance can be attributed to several factors, including the region's advanced pharmaceutical manufacturing infrastructure, higher concentration of research and development (R&D) facilities, and larger population that drives the demand for antimalarial drugs. Southern Vietnam, particularly in cities like Ho Chi Minh City, is the economic and industrial hub of the country. It is home to many of Vietnam's leading pharmaceutical companies, which are actively involved in the production of artemisinin acid and the formulation of artemisinin-based combination therapies (ACTs). The concentration of pharmaceutical manufacturing plants in the south provides a significant advantage in terms of scalability and efficiency of production, enabling local producers to meet the growing demand for malaria treatments both within Vietnam and in international markets. Ho Chi Minh City serves as a key export hub, with well-established logistics and distribution channels that facilitate the movement of artemisinin acid and ACTs to global markets, especially in malaria-endemic regions.

The availability of resources in Southern Vietnam also plays a crucial role in its dominance of the artemisinin acid market. The region benefits from a robust supply chain infrastructure, including access to ports, raw materials, and skilled labor. As the southern provinces have a more established industrial base, they can support biotechnological production processes for artemisinin acid, such as microbial fermentation, with greater ease. With the growing adoption of these biotechnological methods, Southern Vietnam is seeing a rise in the local production of artemisinin acid, further reducing reliance on imported artemisinin acid or artemisinin, thereby promoting the country's goal of self-sufficiency in malaria treatment production.

Southern Vietnam is also home to several key public health programs aimed at controlling malaria. The region sees a significant portion of the country's malaria cases, particularly in areas near border regions with neighboring countries, such as Cambodia. As a result, the demand for effective malaria treatments, such as artemisinin acid-based ACTs, is higher in the south, driving the regional market. Government initiatives in Southern Vietnam have focused on improving access to affordable malaria treatments for underserved communities, which in turn supports the growth of the artemisinin acid market.

### Key Market Players

Bayer Vietnam Ltd.

DHG Pharmaceutical Joint Stock Company

Cipla Limited

Novartis Vietnam Company Limited

Domesco Medical Import Export Joint Stock Corporation (DOMESCO)

OPC Pharmaceutical Joint Stock Company

Sanofi-Aventis Vietnam

Mekophar Chemical and Pharmaceutical JSC

Imexpharm Pharmaceutical Joint Stock Company

Pymepharco Joint Stock Company

#### Report Scope:

In this report, the Vietnam Artemisinin Acid Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Vietnam Artemisinin Acid Market, By Type:

Antimalarial Injection

Antimalarial Tablets

Vietnam Artemisinin Acid Market, By Region:

Southern Vietnam

Northern Vietnam

Central Vietnam

## Competitive Landscape

**Company Profiles:** Detailed analysis of the major companies present in the Vietnam Artemisinin Acid Market.

## Available Customizations:

Vietnam Artemisinin Acid Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

## Company Information

Detailed analysis and profiling of additional market players (up to five).

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