



# Voriconazole (API): Global Market Growth Study Report

Desai S<sup>1\*</sup>, Gubbiyappa KS<sup>1</sup>, Rao BC<sup>2</sup>, Rajagopal D<sup>3</sup>, Sara A<sup>4</sup>, Shareef MDD<sup>4</sup> and Naveen A<sup>4</sup>

<sup>1</sup>Department of Pharmaceutics, GITAM School of Pharmacy, GITAM University, Rudraram, Sangareddy, Hyderabad, India

<sup>2</sup>Department of Pharmaceutics, Jawaharlal Nehru Technological University, Chilkur Balaji College of Pharmacy, India

<sup>3</sup>Department of Commerce, Telangana Mahila Viswavidyala, India

<sup>4</sup>Department of Pharmacy Practice, Jawaharlal Nehru Technological University, Chilkur Balaji College of Pharmacy, India

\*Corresponding author: Desai Sushma, Department of Pharmaceutics, GITAM University, India, Tel: 7989006613; Email: sdesai@gitam.in; Orcid ID: 0000-0001-8682-3355

## Mini Review

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## Abstract

Voriconazole API (active pharmaceutical ingredient) a thermolabile antifungal drug developed in 1980's -a triazole class of drugs successfully surpassed the antifungal drugs having huge demand in market sales globally for its applications to treat severe fungal/yeast infections. The market growth involves its evolution of product in terms of innovation & technologies to withstand the competitiveness in aspect of new entry of drug, suppliers and buyers. The voriconazole drug surpassed USD 10 million dollars in 2023 within three years starting in the year 2020. the market report analysis collected from the various published news articles and the research publications from various business market reports of the manufactured industry reports. In this article we focus on the formulation strategies and research studies that made voriconazole drug stand in the market aiming futuristic growth.

**Keywords:** Voriconazole; Market Growth; Formulation Strategy; Innovation

## Introduction

Voriconazole widely known as VFEND is a synthetic antifungal second generation broad spectrum triazole derivative of flucanazole drug which shows action by inhibiting CYP P450 (cytochrome P450) dependent enzyme 14-alpha sterol demethylase present in fungal cell membrane causing disruption and resulting in fungal growth hindrance.

Voriconazole antifungal drug developed in 1990's and approved by FDA in 2002. As per the Volza global exporters and supplier's directory facts updated till 26 august 2023,

there are 670 active voriconazole exporters in world exporting to 1571 buyers. M S MSN Laboratories Pvt, Ltd holds top for export market share with 601 shipments followed by Sandoz private Ltd with 433 and AUROLAB with 390 shipments. Major exporting countries from India are Bangladesh, Japan, Turkey, Brazil, Egypt, Russia, United Arab Emirates, Spain.

Major supplier's in voriconazole API market from the various resource are:

1. Dr.Reddy's laboratories
2. Murali Krishna Pharma

3. SGMR Pharmaceutical
4. Glenmark Pharmaceuticals
5. ST Pharma
6. Synergene
7. Rundu Pharmaceutical
8. Zhejiang huahai pharmaceutical
9. Neuland lab

### Voriconazole Available Generic Formulations

- In the Market are as
- Oral tablets with strength 50 mg and 200 mg
- Oral suspension with strength 40mg/ml
- I.V /I.M (intravenous/intramuscular) with strength 200mg injection
- Parenteral powder for reconstitution with strength 200mg vial and (10 mg/ml) when reconstituted.

These are prescribed based on patient condition and frequency depending on the disease severity.

The present study is qualitative analysis. Where the data is collected from various research publications, newspapers and reports such as a2z market research, Volza global exporters and supplier's directory, posts and comments in professional network linkedin.

### Review of Literature

- Rubio C, et al. [1] summarized by economic analysis that voriconazole is more cost effective compared to other drugs of the same antifungal group given invasively.
- Jeu L, et al. [2] clearly stated about the pharmacokinetic, pharmacodynamic and clinical effectiveness of voriconazole over other antifungal drugs where their resistance is increasing.
- Sabo JA, et al. [3] based on the data search resources stated that treatment of superficial fungal infections to chronic conditions voriconazole shown to be a promising drug alternative among antifungals.

- Hariprasad, et al. [4] reviewed clinical studies and case reports in ophthalmic research publications of the successful treatment of fungal eye infections utilizing voriconazole
- Rathbun, et al. [5] evaluated the review studies regarding the safety and efficacy profile of voriconazole.
- Pearson, et al. [6] studied the data pertaining to voriconazole and comparing with the amphotericin B drug which is highly effective.
- Williams K, et al. [7] discussed the photosensitivity of voriconazole, that if not properly monitored may lead to squamous cell carcinoma stressed the need for further research studies.
- Shi, et al. [8] summarized the studies on population pharmacokinetic models of voriconazole.
- Pires de SA FAP, et al. [9] formulated liposomal delivery systems for voriconazole for treatment of fungal eye infections as ocular systems.
- El-Hadidi GN, et al. [10] formulated microemulsions as a delivery vehicle for voriconazole as the drug is poorly water soluble.
- Pandurangan DK, et al. [11] investigated the formulation of ophthalmic solid lipid nanoparticles in-situ gel voriconazole.
- Asija R, et al. [12] formulated voriconazole ointments for topical delivery.
- Esentruk I, et al. [13] formulated nanofibers of voriconazole for studying its effect against candida species.

### Study Objective

To study exclusively about voriconazole drug manufacturer sales value marketed dosage forms.

Global market of voriconazole injection manufacturing Pharmaceutical companies with country of origin are tabulated as follows Tables 1 & 2.

| S.No | Manufacturer                                | Country  |
|------|---|----------|
| 1    | Pfizer                                      | American |
| 2    | Hainan Poly Pharm Co., Ltd.                 | China    |
| 3    | Livzon Pharmaceutical Group Inc.,           | China    |
| 4    | Beijing SI Pharmaceutical Co., Ltd          | China    |
| 5    | Changjiang Runfa Health Industry Co., Ltd.  | China    |
| 6    | Qilu Antibiotics Pharmaceutical Co., Ltd.   | China    |
| 7    | Jiangsu Aosaikang Pharmaceutical Co., Ltd.  | China    |
| 8    | Brightgene Bio-Medical Technology Co., Ltd. | China    |

|    |                        |             |
|----|------------------------|-------------|
| 9  | Maithili Life Sciences | India       |
| 10 | Mediziz Biotech        | India       |
| 11 | Criticine Care         | India       |
| 12 | Eugia Us               | Us          |
| 13 | Sandoz Canada          | Switzerland |
| 14 | Vinson Pharma          | England     |
| 15 | Alvogen                | Us          |
| 16 | Taj Pharma             | India       |

**Table 1:** List of key manufacturers of voriconazole injection market with their country of origin.

| S.no | Manufacturer                               | Country     |
|------|--|-------------|
| 1    | Pfizer                                     | America     |
| 2    | Teva Pharmaceuticals                       | Israel      |
| 3    | Sandoz                                     | Switzerland |
| 4    | Prinston Pharmaceutical Inc.               | China       |
| 5    | Wellona Pharma                             | India       |
| 6    | Saphnix Lifesciences                       | India       |
| 7    | A S Lifesciences                           | India       |
| 8    | Medzeel Lifesciences                       | India       |
| 9    | Ajanta Pharma                              | India       |
| 10   | Lupin                                      | India       |
| 11   | Saintroy Lifesciences                      | India       |
| 12   | Chengdu Tajhe Technology Group Inc.Ltd.    | China       |
| 13   | Yangtze River Pharmaceutical Group Co. Ltd | China       |
| 14   | Beijing SI Pharmaceutical Co.Ltd.          | China       |

**Table 2:** Lists of Key Manufacturers of Voriconazole tablet market with their country of origin.

### Major Voriconazole Drug Consumption, Region Wise are as Follows

- Asia-pacific (China, Japan, South Korea, Taiwan)
- Southeast Asia (India)
- Latin America (Mexico, Brazil)

### Applications of Voriconazole in Hospital and Clinic

1. Treatment of serious fungal or yeast infections as such
  - Aspergillosis (Infection in Lungs).
  - Candidemia (Blood infection).
  - Candidiasis (candida oesophagitis).
2. Other fungal type infections
  - Infections in
    - Skin

- Kidney
- Bladder
- Wounds

### Disadvantages of Voriconazole Drug

1. Blurred vision
  2. Chapped red or swollen lips
  3. Chills
  4. Clay coloured stools
  5. Confusions,
  6. Dark urine
  7. Decreased urine
  8. Bloating in regions of face, arms, lower legs & feet
  9. Nausea
- Vomiting (Table 3)

| Manufacturer                         | Brand Name of Voriconazole Tablet/ Injection | Strength                 | Cost                       |
|--------------------------------------|--|--------------------------|----------------------------|
| Zydus cadila                         | Vorier 200                                   | 200mg                    | ₹ 500/strip                |
| Hetero healthcare                    | vortero                                      | 200mg                    | ₹ 800/strip                |
| Pfizer                               | Vfend  | 200mg                    | ₹ 2450/strip               |
|                                      | Voricort 200                                 | 200mg                    | ₹1500/strip                |
|                                      | Vorier injection                             | 200mg                    | ₹ 1000/vial                |
| Max healthcare                       | Vorinix                                      | 200mg                    | ₹ 200/unit                 |
| Celeon                               | Voriz  | 200mg                    | ₹ 950/strip                |
| Natco                                | Vorizol injection Z-Vorac                    | 200mg/2 ml vial<br>200mg | ₹ 2700/vial                |
|                                      | Voraze                                       | 200mg                    | ₹ 1700/strip<br>₹ 3000/box |
| Glenmark pharmaceuticals ltd         | Vosicaz injection                            | 200mg                    | ₹ 930/box                  |
| Cipla ltd                            | voritek                                      | 200mg                    | ₹ 1900/strip               |
| Zydus Oncosciences                   | Vorier injection                             | 200mg                    | ₹ 440/vial                 |
| Questus enhancing lives              | Quinil injection                             | 200mg                    | ₹ 250/vial                 |
| Lupin                                | voritrol                                     | 200mg                    | ₹ 300/strip                |
| Neon labs                            | vorineon                                     | 200mg                    | ₹ 700/vial                 |
| Integrated laboratories private ltd. | Worizole 200                                 | 200mg                    | ₹ 3800/piece               |
| Lifecure biotech                     | Vorilife                                     | 200mg                    | ₹ 4246/vial                |
| Gufic                                | Gufivor                                      | 200mg                    | ₹ 200/vial                 |
| Vorier                               | Vorier injection                             | 200mg                    | ₹ 1000/vial                |
| Ranbaxy                              | vorzu  | 200mg                    | ₹ 3000/strip               |
| Zydus celexa                         | Vorizol                                      | 200mg                    | ₹ 2200/strip               |
|                                      | Vorinix injection                            | 200mg                    | ₹ 300/vial                 |
| JIPS                                 | Vasizole-200                                 | 200mg                    | ₹ 4,200/strip              |
| Intas Pharmaceuticals Ltd.           | vorinix                                      | 200mg                    | ₹ 700/box                  |

**Table 3:** Details of voriconazole manufacturer with brand name, strength and cost price.

Major exporting countries for voriconazole from India are Bangladesh, Japan, Turkey, Brazil, Egypt, Russia, United Arab Emirates, Spain. Voriconazole API (active pharmaceutical ingredient) market in India expected to reach from 12.59 billion dollars in 2023 to 18.76 billion dollars in 2028 with 8.31% CAGR.

### Promising Future Outlook of Voriconazole (API) Market

For successful sustenance of in the global market the market research analysis reports the promising future of

voriconazole industrial chain with continuous growth. Owing to its growing demand globally many companies started relying on outsource manufacturing for production with a win-win situation like benefits from expertized and rise of emerging markets in regions like Latin America & Asia-pacific. There will be a cost benefit and also accessing skilled workforce. There is also utmost focus on outsourcing partners that they must and should comply strictly with the regulations which are critical in industry equipping with technologically advancements in manufacturing unit for cost-effective and qualitative products (Figure 1).

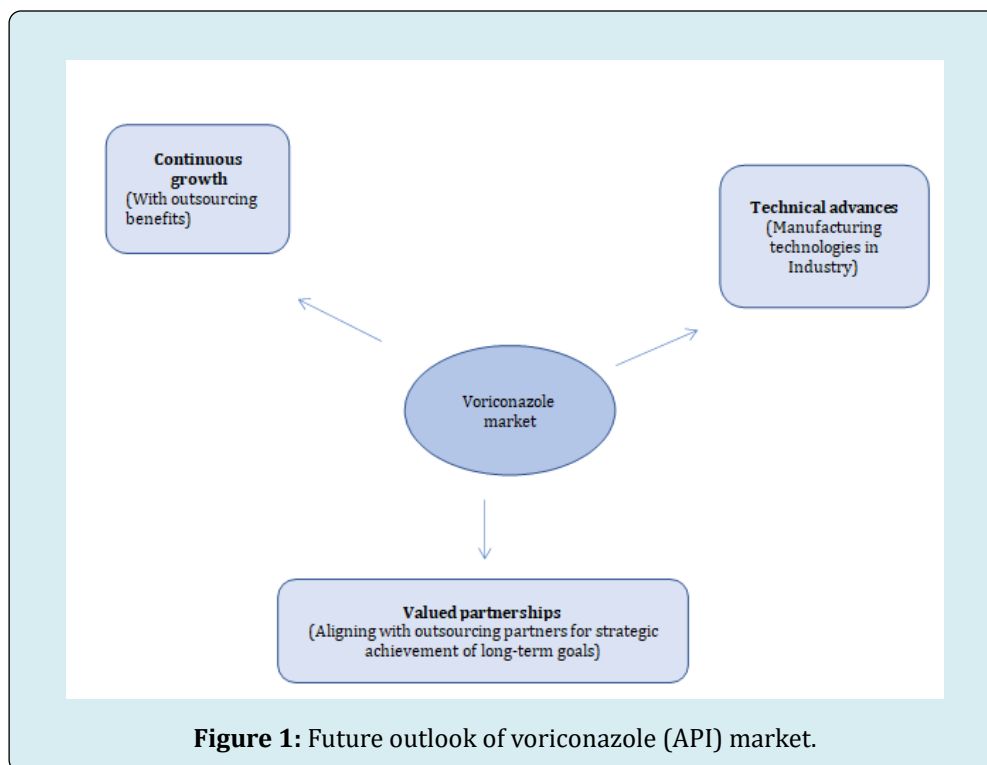


Figure 1: Future outlook of voriconazole (API) market.

### Opportunities and Challenges in Voriconazole API Market

For withstanding in the market following key-points are crucial.

**Competition:** It has to passthrough the competition in areas of leading technical advancements, continuous innovation process and its product dominance in market with pricing.

**Security:** Security is a challenging issue to secure the sensitive data and protect from breaches.

**Focus on Sustenance:** Customer needs to be given Priority (Usage Of Eco-Friendly Materials) For Environmental Protection and Consciousness.

### Conclusion

The present research study on the market scenario of the Voriconazole API, proves to be promising and the continuous efforts put by the companies for sustenance in the global market worth studying and appreciating the efforts put by the R& D striving for the patient compliance in formulation development for the treatment of deadly fungal infections and strive for early recovery is the motive of the research studies.

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