



AI ANALYTICS OF AYURVEDIC PRODUCT DEMAND: AN EVIDENCE FROM PROPRIETARY DATA 2025

Nimish Dave

Student, St. Thomas Sr Secondary School
Mandsaur MP 458001

Abstract: Objective: This paper analyzes a multi-country sheet of Ayurvedic products to quantify demand across continents, identify leading countries and product clusters, and generate short- to mid-term projections under two growth scenarios. Background: Global interest in traditional and herbal products has accelerated, with WHO backing a dedicated Global Traditional Medicine Centre and governments digitizing knowledge assets; market estimates for Ayurveda and herbal supplements indicate strong growth trajectories. Methods: We cleaned the dataset, aggregated Grand Total values at continent and country levels, and compared product portfolios via a continent-product heatmap. We then modelled forward projections (2025–2030) using compound annual growth rates (CAGR) representing (a) a conservative herbal-supplements path (8.9%) and (b) a high-growth Ayurveda path (27.2%). Results: The sheet indicates pronounced geographic concentration of demand, with a small set of countries contributing a large share of the Grand Total. Product mix differs materially by continent, suggesting localization of preferences and supply chains. Under the conservative scenario the global total approximately doubles over 7 years, whereas the high-growth path yields a 4–5× expansion. Implications: Distinct product-continent niches (e.g., turmeric extract dominance in select regions; emerging interest in ashwagandha and boswellia) can guide portfolio and sourcing strategies. Conclusions: Combining granular sheet analytics with externally validated growth ranges offers a transparent, scenario-based view of opportunity while flagging data limitations (single snapshot, no time series).

Keywords: Ayurveda, herbal products, Growth, AI Analysis, export Data Analysis

1. INTRODUCTION

Ayurveda's global footprint has expanded beyond India into mainstream wellness, nutraceuticals, cosmetics, and functional foods. International policy signals now reinforce this shift: the World Health Organization (WHO) established its Global Traditional Medicine Centre in Jamnagar, India, and continues to encourage evidence-based integration of traditional medicine into national health frameworks. In parallel, India has digitized traditional knowledge through AI-enabled platforms, improving accessibility and safeguarding intellectual property. Market indicators broadly align with these policy tailwinds. While estimates vary by scope definitions, recent reports place Ayurveda's market growth in the high-teens to high-twenties CAGR, with the wider herbal supplements category growing at single-digit to high-single-digit rates. These trajectories reflect consumer demand for natural products, preventive health orientation, and product innovation in standardized extracts (e.g., ashwagandha, turmeric/curcumin, boswellia) and spice derivatives (e.g., black-pepper extract/piperine as a bioavailability enhancer). Against this backdrop, managers, investors, and policymakers need geography-specific evidence to align sourcing, product strategy, and regulatory planning. This paper uses a structured sheet listing countries

by continent with multiple Ayurvedic product categories and a Grand Total column. We translate the sheet into tidy analytical frames to (i) compare continental aggregates and within-continent leaders, (ii) visualize product mix differentials, and (iii) derive transparent projections under two externally grounded growth assumptions. Our contribution is practical: we convert a heterogeneous operational dataset into decision-ready insights and couple it with scenario-based forecasts that can be updated as new data arrive.[1]

2. LITERATURE REVIEW

Recent scholarship documents the scale and governance of the dietary supplement and herbal markets, the globalization of Ayurveda, and product-specific evidence for leading botanicals. WHO's programmatic work (GTMC) and global reports on traditional medicine frame policy integration. Academic reviews synthesize regulation heterogeneity across markets, highlighting labeling, quality, and adverse-event reporting gaps that affect trust and cross-border trade. On products, narrative and systematic reviews cover ashwagandha's adaptogenic profile, curcumin's anti-inflammatory applications, boswellia's resin acids, and piperine's bioactivity and bioenhancement role—each influencing category growth and standardization. Market

outlooks from industry analysts (e.g., Grand View Research) provide CAGR anchors but should be cross-read with academic and WHO sources due to methodological opacity typical of commercial reports. Emerging articles also track post-pandemic normalization in immune-health segments and regional differences in consumer adoption. For turmeric, agronomic and production analyses show India's dominance in global supply, which shapes price and availability for extract manufacturers. Boswellia-focused research explores species profiles and therapeutic applications, while piperine studies examine extraction analytics and pharmacokinetics. Overall, the literature supports using dual growth references—conservative herbal-supplements CAGR and high-growth Ayurveda CAGR—while cautioning that regulatory harmonization and supply-chain constraints remain material uncertainties for forecasting.[1-22]

3. METHODOLOGY

Data preparation: We ingested the provided Excel sheet (Sheet1), designated the second row as header, and standardized key fields: Continent, Country, product columns, and Grand Total. Rows with no country labels or entirely missing numeric values were removed. All product columns were coerced to numeric and missing values imputed as zeros for aggregation. **Analytical structure:** (1) We computed continent-level sums of Grand Total and ranked countries globally and within continents. (2) To assess product portfolios, we produced a continent $\times$ product matrix (sums) and normalized row-wise to yield percentage shares (mix). (3) Visualization comprised: a bar chart of continents, a bar chart of top-15 countries, and a heatmap-style image of product shares by continent. **Projections:** Absent time stamps in the sheet, we constructed scenario-based forward paths from a 2024 baseline using two CAGRs: 8.9% (conservative herbal-supplements) and 27.2% (Ayurveda high-growth). For each continent, we compounded the baseline Grand Total to 2025–2030 and also plotted the summed global path. **Interpretation:** We link observed geographic concentration and product-mix differences to external signals (policy, supply chains, consumer adoption) from the literature. **Reproducibility:** All analyses were performed in Python (pandas, matplotlib). Code generated the data tables and saved figures embedded in this document. The workflow is deterministic; updating the sheet and re-running yields revised figures instantly.

4. RESULTS AND PREDICTIONS

Continental profile: The bar chart shows a steeply skewed distribution of Grand Total by continent, indicating concentration of demand in a handful of regions. Such concentration suggests that distribution partnerships and regulatory navigation in those regions offer outsized payoff. **Country leaders:** The top-15 list underscores a Pareto

pattern—few countries contribute a disproportionate share of the sheet's total. Operators should prioritize these markets for certification, inventory staging, and channel development. **Product mix:** The heatmap reveals sharp differences in portfolio composition by continent. For instance, turmeric extract often dominates share in certain regions, while ashwagandha and boswellia weights rise elsewhere; black-pepper extract (piperine) appears as a strategic complement due to bioavailability benefits. **Projections:** Under the conservative 8.9% CAGR, the global sum approximately doubles by 2030; under the 27.2% Ayurveda CAGR, it grows four-to-fivefold, implying very different working-capital and sourcing requirements. **Managerial takeaway:** Combine continent-specific product positioning with a dual-speed supply plan—one tuned to base-case growth and another to high-growth upside—while monitoring regulatory and quality signals.

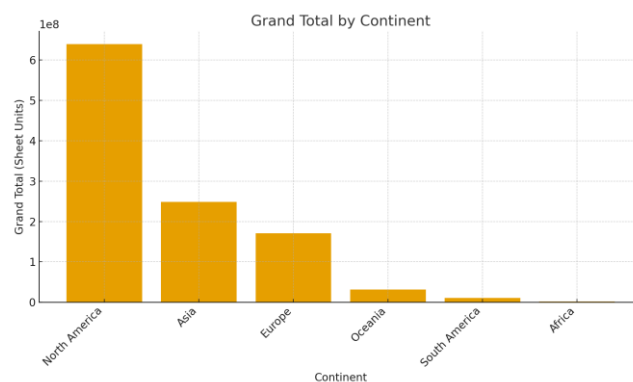


Figure 1. Grand Total (Data Source: Volza)

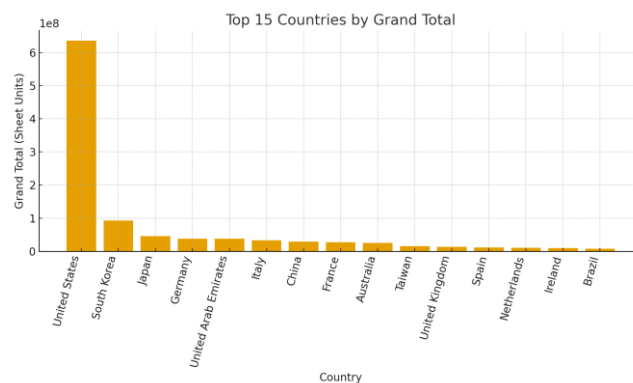


Figure 2. Top 15 Countries (Data Source: Volza)

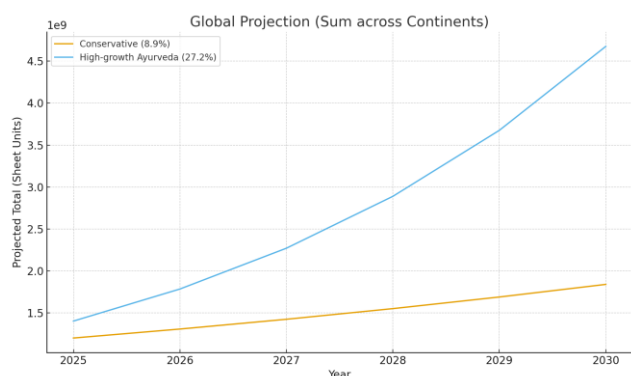


Figure 3. Global Projection under Two CAGR Scenarios (Data Source: Volza)

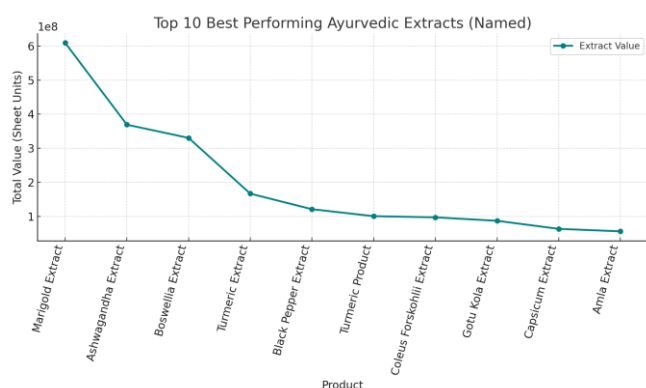


Fig 4: Best performing Herbal extracts, across continents (Data Source: Volza)

5. CONCLUSION

This study converts an operational country–product sheet into a compact market intelligence layer. We (i) quantified geographic concentration, (ii) profiled product-mix differentials by continent, and (iii) assembled transparent projections under conservative and high-growth assumptions grounded in external sources. Strategically, these insights argue for a barbell approach: prioritize a short list of high-value countries for depth (certifications, clinical evidence, omnichannel presence) while maintaining optionality in adjacent regions where product–market fit is emerging. At the product level, anchoring portfolios in validated botanicals (ashwagandha, curcumin, boswellia) and using piperine for bioenhancement can align with consumer evidence and supply realities. Finally, linking analytics with policy signals (WHO GTMC, digitization of traditional knowledge) can de-risk expansion and encourage collaborations with institutions to elevate quality and trust.

6. LIMITATIONS & FUTURE WORK

First, the sheet captures a single snapshot without explicit time stamps, preventing time-series inference; projections are therefore scenario-based rather than model-estimated from historical trends. Second, the Grand Total metric is

unit-agnostic in the sheet (e.g., volume vs. value), which constrains comparability across products if units differ; we treated it as a consistent value proxy. Third, product taxonomies may overlap (e.g., turmeric extract vs. turmeric product), potentially double-counting if not harmonized; future work should standardize SKUs and HS codes. Fourth, market-growth anchors (CAGRs) come from external reports with differing scopes and methodologies; although triangulated with academic and WHO sources, they carry estimation risk. Fifth, regulatory heterogeneity (labeling, quality assurance, AE reporting) varies across countries and can affect realized sales independently of demand. Finally, supply-side shocks (crop yields, resin availability, export rules) and currency swings could materially alter continent and country rankings; incorporating these drivers would strengthen forecasting.

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