

Marketing efficiency of *Aloe vera* medicinal plant in Thoothukudi District of Tamil Nadu State

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Abstract

A sizeable portion of the Indian population relies on medicinal plants for both their livelihood and health security. These plants also provide a vital source of raw materials for the traditional medicine and herbal industries. The effectiveness of marketing and the impact of price variation on consumer share in the Thoothukudi district are examined in this essay. The 401 acres of aloe vera cultivation with 90 farmers in the Thoothukudi district were chosen for the study. 54 of the sample's 90 farmers are small-scale, while the remaining 36 are large-scale. A field investigation took place in December 2022. Secondary data is gathered from a variety of official documents, academic studies, journals, libraries, magazines, books, newspapers, the internet, and various organisations. The study's tools included trend analysis and regression coefficients. The study found that the marketing effectiveness of aloe vera is 5.27 for small farms and 6.44 for large farms. The high efficiency can be attributed to the few intermediates in the chain and their small marketing margins. Furthermore, large farms are more efficient at marketing than small farms because small farms depend on middlemen for loans and transportation. The results of the analysis show that the regression coefficients are favourable and statistically significant at the 5% level, which implies that a 1% change in the user's price will result in an increase in the producer share of small farms of 0.47 % and large farms of 0.53 %. Changes in user prices can be blamed for between 73% and 79% of the variance in the producer's share, according to the R² value. Therefore, changes in user or consumer pricing have a significant effect on the share of the produce. The aforementioned incident clearly illustrates how lucrative the research sector found growing Aloe vera and medicinal plants to be. Producers could still make a better profit even though it cost a lot of money to grow this crop. Since the crop is a medical plant, less manure and fertiliser are used, but pesticides are applied more frequently to reduce pest incidence in the study region.

Key words : Medicinal plants, *Aloe vera*, antibacterial properties, pharmaceutical industry, marketing efficiency.

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Herbal-centred ayurvedic usage is heavily reliant on medicinal plants. Millions of people, especially in the Indian Himalayan region, depend on medicinal plants for their survival. It is amazing how strong intellectual property rights protection has aided nations like China in seizing dominance in international trade. Indian rural residents who have limited access to healthcare depend heavily on medicinal plants for their daily needs.⁷

China holds 45 percent of all patents on herbal, herbal-based, or related medicines, with Japan coming in second with a 28 percent share.²⁶ For in-situ conservation, Kerala, Tamil Nadu, and Karnataka in the south have established Medicinal Plants Conservation Areas (MPCA) and the Medicinal Plants Conservation Network (MPCN).¹²

In the Unani system of medicine, aloe vera is a well-known drug that has been included in Indian, British, and many other international pharmacopoeias.²² Bright sunlight is necessary for aloe vera plants. Growth is encouraged by infrequent rain during the growing season.⁵ Cloudy and heavy rain are not beneficial to the crop.¹⁵ The forests of Tamil Nadu are home to more than 90% of the world's medicinal plants, according to the report.²¹

In contrast to Korea, which has exports of \$24.1 million, India has a \$ 221 million total. India contributed \$ 19.8 million, compared to South Korea's \$ 20.9 million, to the exports of plants used in pharmacy, perfumery, *etc.* to the six OECD countries.²⁵ In addition, West Germany, France, the United

Kingdom, the United States of America, and West and Eastern Europe are the top importers of medicinal plants from India.¹

China (\$12.06 million), Yugoslavia (\$11.7 million), Kenya (\$10.4 million), Zaire (\$7.9 million), Argentina (\$5.2 million), and Afghanistan (\$4.6 million) are the other top exporters to OECD nations of medicinal plants used in pharmacy, perfumery, and other industries.⁶

About 10% of these goods were exported from Korea and India, while 5% were shipped from China, Yugoslavia, and Kenya.²⁵ About \$125 million is thought to be the size of the raw aloe industry. The market for finished products containing aloe vera is estimated to be worth around \$110 billion.⁸ The marketing effectiveness of the Aloe vera medicinal plant and the effects of price variation on the market share of the producer are the topics of the current paper, which is set in the Tamil Nadu state district of Thoothukudi.

Objectives of the study :

1. The study's goals include investigating aloe vera's therapeutic benefits.
2. To determine how well Aloe vera is marketed.
3. Analyse how changes in the price of consumers affect the producer share.

On the global market, India is the country that exports the most aloe vera. Aloe vera is customarily grown in Tamil Nadu's southern districts, particularly those of Madurai,

Viruthunagar, and Thoothukudi. Thoothukudi district in Tamil Nadu, which displays the largest area under aloe vera cultivation next to Sivagangai district, has been chosen as the study area for the current study. *Aloe vera* can be grown with the greatest success in this region thanks to the soil and climate. Additionally, through the port of Thoothukudi, *Aloe vera* grown in this district has been exported. Thoothukudi district was chosen for the current study primarily due to these factors. Thoothukudi district uses stratified multi-stage random sampling. The 401 acres of aloe vera cultivation with 90 farmers in the Thoothukudi district were chosen for the study. Farmers with less than five acres were classified as small farmers, and those with five acres or more were classified as large farmers. The small size group comprises 54 of the sample's 90 farmers, while the large size group comprises the remaining 36. December 2022 saw the completion of the field investigation. Secondary information is gathered from a variety of government reports, research reports, journals, libraries, magazines, books, newspapers, the internet, and various institutions. Regression coefficients and trend analysis were the study's tools.

Medicinal values of Aloe vera :

A large portion of the Indian population benefits from medicinal plants in terms of livelihood and health security in addition to serving as a significant resource base for the traditional medicine and herbal industry.²⁰ Because of the herbal movement started by naturopaths, yogi gurus, proponents of alternative medicine, and holistic healers, aloe vera use has recently grown in popularity.³

The *Aloe vera* industry is thriving today,

and its gel is used in a variety of goods for cosmetic, medicinal, and health purposes, including fresh gel, juice, and other formulations.¹¹ To evaluate the calibre and quantity of bioactive chemicals present in the finished products, the quickly growing aloe vera industry urgently needs trustworthy testing protocols.⁹

A. vera is frequently used to make a curry in Tamil Nadu, India, which is then served with rice or nan bread.^{13,16} 200 different types of molecules can be found in aloe vera. About 98 percent of the aloe vera leaf gel is made up of water.⁹

The vital antioxidant vitamins A, C, and E are among the numerous vitamins found in aloe vera gel. Choline, riboflavin, niacin, thiamine (vitamin B1), folic acid, and riboflavin (vitamin B2) are also present.¹⁹

Gram-positive bacteria are resistant to the antibacterial effects of aloe vera juice.² As evidenced by the availability of topical ointments, gel preparations, tablets, and capsules, aloe vera also finds significant use in the pharmaceutical industry.¹⁵

Aloe leaves can be eaten like vegetables. Western Rajasthan frequently prepares pickles using small pieces of leaf pods.²³ Other food products that use it include milk, ice cream, confections, and more. Additionally, some foods use aloe vera gel as a preservative and flavouring.¹⁰ As a result, a quick and effective processing method must be created specifically for the aloe beverage industry to increase product quality and safety while retaining the bioactive chemicals found in the whole leaf of *Aloe vera*.¹⁵

D. Amutha,⁴ has researched the various ways that herbs are traded, as well as the distinctive traits of the major plants, their uses, and the standards for quality that must be met. She has discussed the price and consumption trends in the major markets as well as the patterns of trade for herbs worldwide. Her research has led her to the conclusion that growing herbs does not inspire beginner growers seeking quick returns on a small investment.

The market potential for aloe vera has been examined by Kapur and Atal¹⁷ Most of the produce is shipped from Tuticorin and Bombay to the major import markets of the United States and the United Kingdom. The estimated annual global demand for aloe vera is 10,000 tonnes, while India exports 4,500 tonnes on average each year. Therefore, the authors have emphasised the requirement for greater aloe vera cultivation in India.

The cultivation of medicinal plants in Nagercoil, Kanyakumari district, has been covered by Kumar *et al.*,¹⁸ They have discussed the potential for expanding the area covered by medicinal plants in various agro-climatic conditions in this work. They have also talked about potential production, rural employment opportunities, and foreign exchange earnings.

Aloe vera's market potential has been

examined by Kapur and Atal.¹⁷ Most of the produce is shipped from Tuticorin and Bombay to the major import markets of the United States and the United Kingdom. The estimated annual global demand for aloe vera is 10,000 tonnes, while India exports 4,500 tonnes on average each year. Therefore, the authors have emphasised the requirement for greater aloe vera cultivation in India.

Marketing efficiency :

To assess the marketing efficiency in the sale of Aloe vera, Shepherd's formula of the following form is used:

$$\text{Marketing efficiency (M.E)} = \frac{V}{I} - 1$$

where,

V = Value of products sold is consumers' price per tonne of *Aloe vera* and

I = Total cost of marketing.

The marketing efficiency of the *Aloe vera* market based on the above analysis is furnished in Table-1.

According to the table, the marketing effectiveness of *Aloe vera* is 6.44 for big farms and 5.27 for small farms. Because the chain of intermediaries is short and their marketing margins are low, there is a high level of efficiency. Furthermore, because small farms rely on intermediaries for transportation and

Table-1. Marketing efficiency of the *Aloe vera* market

Sl. No	Particulars	Small farmers	Large farmers
1.	Value of <i>Aloe vera</i> sold per tonne (in Rs.)	7534.08	8051.73
2.	Marketing cost per tonne (in Rs.)	763.15	619.47
3.	Marketing Efficiency (M.E.)	5.27	6.44

Table-2. Effects of variation in final user's price on the share of the producer

Particulars	Regression Coefficients		R ²	F
	a	b		
Small farmers	1.3048	0.4732* (2.8741)	0.7318	26.5017
Large farmers	1.8694	0.5302* (1.5314)	0.7904	19.3841

Figures in parentheses are the t-values.

*Indicates that the coefficients are statistically significant at a 5 per cent level.

credit, the marketing effectiveness of large farms is higher than that of small farms.

Effects of variation in the consumers' price on the share of producer :

The following regression equation is fitted to determine how changes in the user's price affect the share of the produce:

$$Y = a x^b$$

where,

Y = Percentage of producer's share in final user's price and

x = Final user's price.

a and b are parameters to be estimated.

Table-2 contains the findings of the regression analysis.

The analysis's finding that the regression coefficients are significant and positive at the 5% level means that a 1% change in the user's price will result in a 0.47 % increase in the producer share for small farms and a 0.53 % increase for large farms. The R² value indicates that between 73 and 79 percent of the variation in the producer share is attributable to changes in user prices.

As a result, changes in consumer or user prices have a significant impact on the share of the produce.

The instance makes clear that *Aloe vera* and medicinal plant cultivation were extremely profitable in the study area. Farmers could make a higher amount of profit even though a significant sum of money was required to cultivate this crop. Due to the crop's tolerance to drought and the fact that it is grown as a rainfed crop in the study area, it can withstand drought conditions to a certain extent. The crop requires little maintenance in terms of weeding, applying manures and fertilisers, etc. Given that the crop is a medicinal plant, fewer manures and fertilisers are used, but more pesticides are used in the study area to reduce pest incidence. Advanced technology (high-yielding varieties, disease and pest management) could be modified side by side to boost this crop's output. Long-term research should be put into developing better varieties of *Aloe vera* and medicinal plants, it tends to suggest. To create the necessary human capital for sustainable development, education should be one of the top priorities. Younger farmers need to get ready so they can become more proficient.

Conflicts of Interest

The author does not have any conflict of interest.

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