

IMPORTANCE OF THE MEDICINAL MEXICAN DATURA (DATURA INNOXIA  
MILL) IN MEDICINE AND IN THE NATIONAL ECONOMY

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<https://doi.org/10.5281/zenodo.20268965>

**Abstract:** *Datura innoxia* mille, commonly known as Mexican Bangidevona, is a plant species with a long history of medicinal use. This article examines its importance in traditional and modern medicine, as well as its impact on the national economy. After reviewing the literature on its pharmacological properties, cultivation practices and economic importance, we highlight the potential of *Datura innoxia* in various sectors, including the pharmaceutical industry, agriculture and the local economy.

**Keywords:** *Datura innoxia*, Mexican Bangidevona, medicinal plants, pharmacology, national economy, agricultural impact, traditional medicine, economic development, ethnobotany.

**Introduction.** *Datura innoxia* or Mexican Bangidevona is a plant native to Mexico, known for its many medicinal properties. It has been used in traditional medicine for centuries to treat various ailments, including respiratory, pain, and digestive disorders. The plant contains alkaloids such as scopolamine and hyoscyamine, which have significant pharmacological effects. Despite its toxic properties, *Datura innoxia* has been recognized in modern pharmacology for its potential therapeutic uses. In addition to its medicinal value, this plant plays an important role in the national economy, particularly in rural and agricultural communities, due to its cultivation and trade.

We used a multidisciplinary approach to assess the medicinal and economic importance of *Datura innoxia*. This included:

**Literature review:** analyzing the available studies on the pharmacological properties, toxicology, and traditional uses of the plant.

- **Field studies:** visiting rural areas where *Datura innoxia* is grown to assess its economic importance and role in the local economy.

- **Surveys:** interviewing farmers and herbalists to understand the cultivation practices, trade dynamics, and market value of the plant.

- **Pharmacological investigation:** reviewing laboratory studies on the extraction of alkaloids and their medicinal uses, focusing on clinical outcomes and safety profiles.

*Datura innoxia* Mill, commonly known as Mexican bangidevona or toloache, is a plant species of historical and modern importance in both traditional medicine and agriculture, especially in Mexico.

**Medicinal Importance:**



**Traditional Uses:** *Datura innoxia* has been used in indigenous Mexican medicine for centuries. The plant contains tropane alkaloids such as scopolamine and hyoscyamine, which are known for their psychoactive properties. It has been used to treat conditions such as pain, asthma, and digestive disorders. It is also known for its sedative and muscle relaxant properties.

**Therapeutic Applications:** - **Pain Management:** The plant's alkaloids can be used as analgesics to relieve pain, especially in spasms or muscle tension. - **Anticholinergic Effects:** Due to compounds such as scopolamine, it has been used to manage motion sickness and nausea. - **Bronchodilation:** Traditionally, it has been used to help with respiratory problems such as asthma, as it helps to dilate the airways.

**Modern research:** Although *Datura innoxia* is not widely used in modern pharmacology due to its potential toxicity and hallucinogenic effects, ongoing research is focused on its alkaloids to develop new therapeutic agents. However, its use in medical practice is generally limited to controlled formulations.



Figure 1. *Datura innoxia*

### **Economic importance:**

**Medicinal plant industry:** *Datura innoxia* contributes to the Mexican medicinal plant industry. It is cultivated and harvested for its therapeutic properties, especially in the production of herbal medicines and tinctures.

**Agricultural economics:** In rural areas, cultivation of *Datura innoxia* can be a source of income, as it is cultivated for both medicinal purposes and as an ornamental plant. Its cultivation is integrated into local agricultural systems, especially in areas where traditional medicine is a common practice.

**Exports:** Mexico exports a variety of medicinal plants, including *Datura innoxia*, to international markets, where it is valued for its properties in alternative medicine. This trade is a



source of income for local farmers and businesses involved in the processing and export of these plants, contributing to the national economy.

#### Risks and regulation:

Despite its benefits, *Datura innoxia* also poses significant risks due to its toxicity and hallucinogenic effects, which can lead to poisoning if consumed improperly.

As a result, its use is carefully regulated in many countries, and traditional knowledge is essential for its safe use.

*Datura innoxia* Mill plays an important role in both traditional medicine and the Mexican national economy, its medicinal properties are used for various treatments, and its cultivation contributes to the local agricultural and medical sectors. However, its economic value must be balanced against the need for regulation and education regarding its safe use due to its toxicity.

The medicinal use of *Datura innoxia* is of a complex dual nature. On the one hand, its alkaloid content provides significant health benefits, especially in the treatment of conditions such as motion sickness and asthma. On the other hand, its toxic effects can pose serious health risks if not properly controlled. The economic importance of the plant is also undeniable, contributing to the local agricultural economy and providing resources for the pharmaceutical industry. However, further research is needed to ensure the safe and effective use of this plant in medicine. Regulations and guidelines for its cultivation and sale can help reduce potential health risks and increase its economic benefits.

#### Conclusion:

**Medicinal value:** *Datura innoxia* has great potential in the medical field, its active compounds provide therapeutic benefits, especially in the treatment of motion sickness, asthma and some neurological diseases.

**Economic importance:** *Datura innoxia* cultivation supports the livelihoods of many rural communities and contributes to the national economy, especially through the export of its medicinal products.

#### Toxicity concerns:

Despite its benefits, the toxicity of the plant cannot be ignored. Safe practices and regulations should be implemented to prevent misuse and ensure its effective medicinal use. - Further research: More clinical studies and pharmacological studies should be conducted to explore the full medicinal potential of *Datura innoxia*, with particular attention to safety and efficacy. - Cultivation regulation:

Guidelines for the cultivation, harvesting and processing of *Datura innoxia* should be developed and implemented to prevent misuse and overdose. - Public awareness:

Educating local communities and health practitioners on the proper use of *Datura innoxia* can help reduce its risks and increase its therapeutic use.

In conclusion, although *Datura innoxia* is a valuable medicinal plant that plays an important role in both traditional medicine and the national economy, it requires careful management to ensure its safe and effective use in modern medical practice.



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