

OLOLIUQUI

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Primary Disciplinary Field(s): Ethnobotany, Ethnopharmacology, Psychiatry, History of Medicine

1. Core Definition

Ololiuqui (derived from the Nahuatl term *ololiuhqui*, meaning 'round object' or 'spherical body') is the indigenous name traditionally applied to the psychoactive seeds obtained from the perennial climbing vine, **Turbina corymbosa** (syn. *Rivea corymbosa*), a species native to Central and Southern Mexico and Central America, belonging to the Convolvulaceae (Morning Glory) family. These small, hard, dark seeds are classified as a powerful entheogen, meaning they are used to produce spiritual or divine experiences, and have been central to various Mesoamerican religious and medicinal traditions for centuries.

The pharmacological activity of Ololiuqui is due to a complex mixture of **ergoline alkaloids** present in the seeds. Although often compared to LSD (lysergic acid diethylamide), the primary active compound is ergine, or D-lysergic acid amide (LSA). This natural alkaloid is chemically related to LSD but typically elicits a substantially different subjective experience, characterized by vision-inducing properties along with notable sedative and sometimes physically uncomfortable effects, distinguishing it from synthetic psychedelics.

2. Historical Discovery and Nomenclature

The existence and ritual use of Ololiuqui were first documented for Western science during the Spanish colonization of the Americas. The earliest authoritative description comes from the 16th-century work of **Dr. Francisco Hernandez de Toledo**, the Royal Physician to King Philip II, who led a major scientific expedition to New Spain (Mexico) to catalog its natural resources. In his extensive compilation, *Historia de las Plantas de Nueva España*, Hernandez detailed the indigenous classification and ritual consumption of Ololiuqui, noting its use for divination, healing, and communicating with ancestral spirits, thereby confirming its vital role in pre-Columbian religious practice.

Despite this early documentation, the identity of the plant species providing the Ololiuqui seeds became obscured in European literature over the subsequent centuries, often confused with other indigenous psychoactive substances or dismissed as myth due to suppression by the Spanish Inquisition. It was only in the mid-20th century that the specific botanical source was definitively identified. Pioneering ethnobotanical fieldwork by researchers, most notably **Richard Evans Schultes**, confirmed that the traditions surrounding Ololiuqui persisted in remote indigenous communities, leading to its eventual scientific classification as *Turbina corymbosa*.

3. Chemical Composition and Psychoactive Effects

The pharmacological profile of Ololiuqui is dominated by the presence of **ergoline alkaloids**, secondary metabolites synthesized by a symbiotic fungus (an endophyte) that colonizes the plant tissues, including the seeds. The most critical psychoactive constituent is ergine, or LSA. The chemical structure of LSA closely mirrors that of LSD, making Ololiuqui one of the few known natural sources of lysergic acid derivatives found in higher plants, a fact that revolutionized thinking about natural product chemistry when it was discovered.

The primary mechanism of action involves the modulation of the central nervous system, particularly the agonism of various serotonin (5-HT) receptors, which is characteristic of classic psychedelics. However, the presence of other alkaloids, such as isoergine, chanoclavine, and elymoclavine, contributes to the overall spectrum of effects. The ratio and absolute concentration of these alkaloids vary, influencing the subjective experience. Users typically report visual and auditory hallucinations, altered perceptions of time and self, and intense emotional states. Crucially, the effects are often accompanied by significant peripheral physical side effects--such as muscle cramps, nausea, and general physical discomfort--which are generally attributed to the non-LSA alkaloids and other biological components present in the raw seed material.

4. Traditional and Ritualistic Use

In traditional Mesoamerican societies, particularly among the Zapotec, Mixtec, and Mazatec groups in Oaxaca, Mexico, Ololiuqui is revered as a sacred plant, or *teonanacatl*. Its consumption is strictly controlled and reserved for ritualistic contexts, typically administered by a specialized healer, or *curandero*. The purpose of ingestion is rarely recreational; instead, it serves essential functions within the communal structure, including divination, diagnosis of illness, prophecy, and spiritual guidance.

The preparation involves grinding the seeds, usually in a dark environment, and mixing the resulting paste or powder with water or other liquids. The ritual setting is critical, emphasizing reverence and seriousness; the effects of the seed are interpreted by the curandero as messages from the divine or insights into the root cause of a patient's affliction, distinguishing the practice sharply from modern psychological interpretations of altered states. This use reflects a deep ethnobotanical knowledge system where specific plants are utilized not merely for their pharmacological properties but for their perceived spiritual intelligence.

5. Modern Scientific Investigation and Rediscovery

Despite the sixteenth-century documentation, Ololiuqui remained pharmacologically unexamined until the mid-20th century. The critical breakthrough occurred in 1960 when the Swiss chemist **Albert Hofmann**, the synthesizer of LSD, successfully isolated and identified ergine and related

lysergic acid amides from the seeds of *Turbina corymbosa*. Hofmann's discovery validated the historical and ethnobotanical accounts and confirmed that lysergic acid derivatives could occur naturally in plants, challenging the previous assumption that such complex molecules were solely products of synthetic chemistry or fungal (ergot) contamination.

This chemical confirmation spurred further pharmacological research, which has focused on understanding the precise mechanisms by which LSA acts on the brain and exploring the potential therapeutic applications of ergoline alkaloids. While LSA has not been widely utilized in Western medicine due to its high association with undesirable physical side effects and legal complexities, the rediscovery of Ololiuqui provided significant support for the emerging field of ethnopharmacology, demonstrating the untapped potential residing within indigenous botanical knowledge systems.

6. Legal Status and Botanical Confusion

The legal status of Ololiuqui seeds is complicated by the presence of LSA, which is frequently classified internationally--for example, in the United States under the Controlled Substances Act--as a Schedule I substance due to its chemical similarity to LSD. While the pure alkaloid LSA is highly regulated, the legal status of the raw seeds themselves, particularly those sold commercially for ornamental gardening purposes (such as Morning Glory seeds from related species like *Ipomoea tricolor*), often exists in a grey area, leading to inconsistent enforcement across different jurisdictions.

Further confusion arises from the tendency in historical and common usage to apply the term "Ololiuqui" loosely. While *Turbina corymbosa* is the scientifically confirmed primary source documented by Hernandez, other species of the Convolvulaceae family, such as certain varieties of *Ipomoea*, also contain ergoline alkaloids and have occasionally been used interchangeably by indigenous groups or misidentified by researchers. This botanical complexity requires careful distinction in both academic study and regulatory contexts to separate genuine traditional use from the modern, unregulated consumption of various Morning Glory seeds.

Further Reading

[Turbina corymbosa \(Ololiuqui\)](#)

[Ergine \(LSA\)](#)

[Francisco Hernández de Toledo](#)

[Ethnobotany](#)