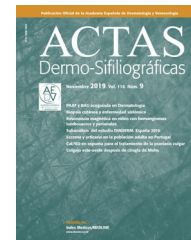




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OPINION ARTICLE

Guarumbo (*Cecropia obtusifolia*) for Warts in Zapotec Medicine[☆]



El tratamiento de las verrugas con guarumbo por los zapotecos

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Approaches to treatment of viral warts have varied throughout history. In addition to practices that may have some pathophysiological basis, such as rubbing the wart with various foods or substances,¹ other, irrational approaches continue to be used. These include “selling” the wart to another person, reciting phrases, or rubbing the wart with a widow’s wedding ring.¹ However, some exotic remedies, such as duct tape, have been validated in comparative scientific studies.² In any case, it is important to remember that a considerable number of warts remit spontaneously without treatment.³

Phytotherapy has played a key role in the treatment of warts among various cultures. *Euphorbia hirta* is used for this purpose in India,⁴ and *Qu You Ding*, a solution compris-

ing several medicinal plants, has been used in traditional Chinese medicine.⁵ Oil of *Tropidurus hispidus* is used in Brazil,⁶ as is *Hancornia speciosa*.⁷ In Iran, some studies have shown the efficacy of myrtle (*Myrtus communis*). In Italy *Arum italicum*, *Tamarix gallica*, and *Ficus carica* are used to treat warts,⁸ often in the context of a magic ritual. The approaches used in Japan include *shokenchuto* and *makyoyokukanto*.⁹

The mechanism by which these natural remedies act against human papillomavirus has been studied in vivo and in vitro.¹⁰ We know that some of their active ingredients can induce apoptosis,¹¹ act as modulators of gene transcription and protein synthesis,¹² regulate cell signaling translation pathways,¹³ and/or stimulate general immunity.¹⁴ Clinically, the effects of destruction of the wart manifest early as pruritus, reddening, or edema of the basal part, followed by roughness of the surface and desquamation after a few days.⁵ In terms of histopathology, spontaneous regression of warts is accompanied by intense lymphohistiocytic infiltrate with satellite metastasis and apoptosis.¹⁵ A similar reac-

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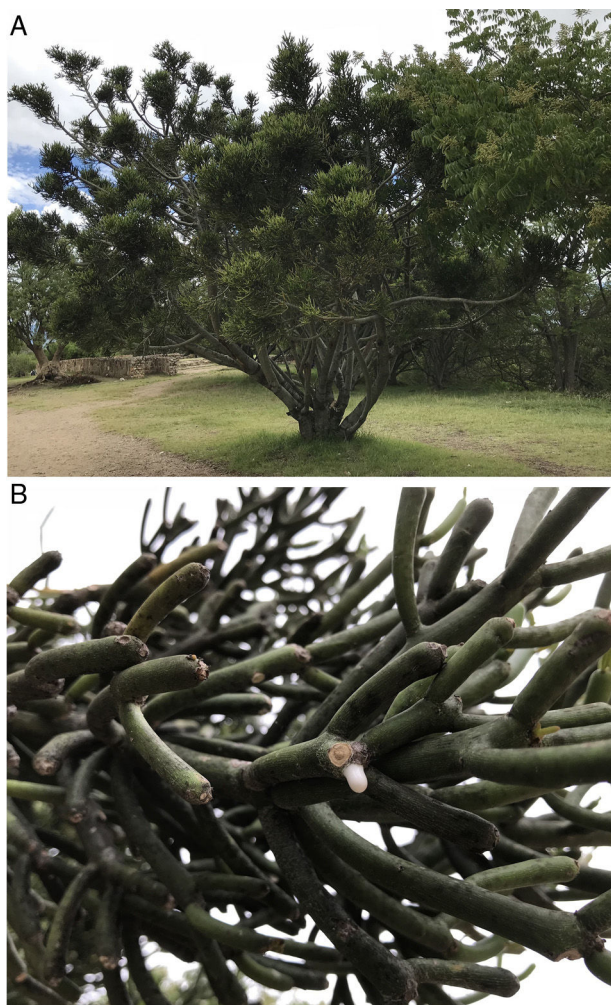


Figure 1 A, Example of guarumbo from the Zapotec settlement of Monte Albán in Oaxaca, Mexico. B, Milky exudate similar to that of the fig tree, with curative properties in warts.

tion can be seen in the regression induced by drugs such as imiquimod.¹⁶

One of the plants used in the treatment of warts is guarumbo (*Cecropia obtusifolia*), which is also known as *chancarro*, *guarumo*, *hormigo*, *hormiguillo*, *palo de hormigas*, *trompeta*, or *trompetillo* (trumpet tree).

Guarumbo is from the tropical areas of the American continent. It has hypoglycemic,¹⁷ diuretic,¹⁸ and hypotensive properties¹⁹ and is abundant in the south of Mexico in the state of Oaxaca. Consequently, it is found in numerous pre-Columbian Meso-American settlements, such as Monte Albán (Fig. 1A), the main Zapotec enclave of Mexico.

The Zapotecs mostly inhabited the areas of Oaxaca, Guerrero, and Puebla. Monte Albán reached its greatest splendor around 700 AD, after which time, for different reasons, this and other settlements were gradually abandoned by their settlers.

The Zapotecs developed an extensive culture of hygiene measures and therapy covering various diseases. This was based on plants and other remedies applied by the *colanij*, a low-ranking group among Zapotec priests,²⁰ generally in the context of a magic ritual preceded by abstinence and fast-

ing and often accompanied by hallucinogenic agents such as yerua and pèyaçòo.²⁰ Informants from the Spanish colonial administration characterized the *colanij* as being knowledgeable about medicinal wild plants and often referred to them—erroneously—using the Mexica term *ticitl* (physician), which was much more familiar to them.²⁰

The main elements of Zapotec dermatological knowledge centered on various practices for skin care and hygiene, including soap, baths (probably in the sulfurous waters of the area), or saunas that were constructed in the shape of tents (*temazcales*).²⁰ They used guarumbo as a skin remedy against warts. Specifically, they used the milky substance released by the plant when its appendices were cut (Fig. 1B).

As for the mechanism of action, evidence for the use of guarumbo to treat several diseases is currently considered grade C (unclear scientific evidence). Its active ingredients include chlorogenic acid, iso-orientin, and quercetin. However, while these have antifungal properties, they do not have antiviral properties, mainly owing to the fact that polyphenols do not mix with cytoplasm in the epithelial cells of warts, thus leaving no place for the action of the polyphenol-polyphenol oxidase system.²¹

The mechanism of action of guarumbo milk may be similar to that induced by latex from the fig tree (*Ficus carica*) which was already mentioned by Avicenna in his *Canon of Medicine*.²² Thus, in studies comparing treatment of warts with fig tree latex and with cryotherapy, the former was only slightly inferior to the latter in terms of outcomes, although it was free from adverse effects, unlike the latter.²² Furthermore, it has shown similar effectiveness to that of other therapeutic approaches used in our daily clinical practice, such as acetylsalicylic acid, topical 5-fluorouracil, intralesional interferon, and imiquimod.²³ While the mechanism of action of fig tree latex is not completely known, it seems to be associated with its proteolytic and keratolytic activity,²⁴ as well as its antiviral activity,^{25,26} and some of its extracts have proven able to inhibit viral replication in vitro.⁶ It can also induce phytophotodermatitis through its furocoumarins, thus triggering local skin injury and an inflammatory response.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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