



# Ten Clinically Relevant Herbals of Traditional Mexican Medicine

Stefan Peterson(1), BA, and Monika Nuffer (2), PharmD

(1) University of Colorado School of Medicine

(2) Departments of Clinical Pharmacy and Family Medicine



School of Medicine  
UNIVERSITY OF COLORADO

## Introduction

- In 2012, \$12.8 billion was spent in US on integrative health and medicine, with an upward trend in use
- Many Mexican Americans continue to practice traditional Mexican medicine in consideration of access to health care, cost, and long family tradition
- Mexico has a substantial history of herbal use in context of the immense biodiversity of 4500 native plants in the region and extensive Mesoamerican history
- Badianus manuscript is earliest documentation of the Aztec herbal practices of the 1500's reporting 184 herbal remedies for specific ailments
- There is an established concern that up to 72% of the Mexican American population does not report their use of herbal remedies to their primary care provider

## Objective

- In accordance with the identified need by multiple organizations including the National Center for Complementary and Integrative Health, the purpose of this study is to further investigate the herbs used by Mexican Americans today
- This population was selected due to the primary author's interest in focusing career among this population
- The first component of this objective included understanding the cultural significance and history of Traditional Mexican Medicine as described in intro
- The second component was dedicated to creating a type of modern Badianus manuscript of 10 herbal remedies used today

## Methods

- Two methods used to collect information and create herbal guide
- First, provider interviews were completed both in Mexico City and Denver to identify commonly used herbals
- Then a literature review was completed with focus on those commonly used herbals that may change clinical practice (i.e. those that are likely safe and effective or those that are likely unsafe but still used)

## Results: Herbal Guide

- Growing evidence for herbals as anti-inflammatory, antibiotic and even anxiolytic agents
- Principal concerns remain- allergic reactions, CYP450 enzyme interactions, and hepatotoxic effects of certain herbals
- Important to identify quality products- ensure clean of adulterants; correct cultivation and processing for more accurate active components and concentrations
- Herbals included: Toloache (*Datura stramonium*), Arnica (*Heterotheca inuloides*), Manzanilla (*Matricaria chamomilla*), Hierbabuena (*Mentha piperita*), Sabila (*Aloe vera*), Valeriana (*Valeriana edulis*), Anis Estrella (*Illicium verum*), Passiflora (*Passiflora mexicana*), Gordolobo (*Verbascum densiflorum*), and Tila (*Tilia americana*)

### Toloache (Jimson weed, *Datura stramonium*)

- Native to Americas, especially Mexico in dry temperate regions, with a variety of cultures reporting use
- Common use previously as an orally administered love potion or ritualistic hallucinogen
- Clear data of safety concerns due to anti-cholinergic toxicity; patient may be unaware of ingestion
- May still have use as topical anti-inflammatory or antibiotic



### Arnica (Mexican Arnica, *Heterotheca inuloides*)

- Native to Mexico- local replacement by Spaniards of physically similar plant *Arnica montana*
- Common use as topical anti-inflammatory agent especially for joint pain, muscle aches, and bruises
- Research shows likely effective, and likely safe when applied topically; avoid use on open wounds; may be hepatotoxic at very high doses



### Passiflora (Mexican Passionflower, *Passiflora mexicana*)

- Native to Mexico, southeast US, and South America
- Common use for insomnia, anxiety, and muscle relaxant
- Used as infusion or tea of leaves and flowers
- Research shows possibly effective, likely safe but high doses can cause adverse effects (dizziness, vomiting, hepatotoxicity)



## Conclusion

- This guide functions as an introductory base of knowledge to be more prepared to evaluate specific herbals used by patients
- Many herbals show potential as both safe and likely effective agents that can be part of a patients care plan
- Next steps include creating a local patient survey to further identify herbal usage and disclosure with primary provider

## Limitations

- Unreasonable to memorize complete list of common herbals and uses, especially considering regional difference
- Difficult to generalize information- much of the research completed on herbals is still in silos and of in vitro research as opposed to robust clinical trials demonstrating efficacy
- Challenge in correctly identifying quality products for use in patient care to ensure desired outcome

## Acknowledgements - Conflicts of Interest - Funding

Special thanks to my MSA project mentor Dr. Monika Nuffer for her encouragement, guidance, and instruction on making this project possible. Additional thanks to the providers that shared local information regarding herbal practices and experiences, especially Omar Fernandez in Mexico City. There are no conflicts of interest to report. There was no funding provided for this project.

## References

- Shaw, D., Ladds, G., Duey, P., Williamson, E., & Chan, K. (2012). Pharmacovigilance of herbal medicine. *Journal of Ethnopharmacology*, 140(3), 513-518.
- National Center for Complementary and Integrative Health. Retrieved from <https://www.nccih.nih.gov/about-the-use-and-cost-of-complementary-health-approaches-in-the-united-states>
- Chugh, N.A., Ball, S., & Kouli, A. (2018). Integration of botanicals in contemporary medicine: roadblocks, checkpoints, and go-ahead signals. *Integrative Medicine Research*, 7(2), 103-125.
- Maddukuri, V. C., & Bonovsky, H. L. (2014). Herbal and dietary supplement hepatotoxicity. *Clinical Liver Disease*, 4(1), 1-3.
- Bye, R., & Linares, E. (2013). Codice de la Cruz-Badiano Primera Parte. *Arqueología Mexicana*, 50, 8-93.
- Linares, E., & Bye, R. (2013). Codice de la Cruz-Badiano Segunda Parte. *Arqueología Mexicana*, 51, 10-93.
- Gardiner, P., Whelan, J. L., White, L. F., Filippelli, A. C., Bharma, N., & Kapchuk, T. J. (2013). A systematic review of the prevalence of herb usage among racial/ethnic minorities in the United States. *Journal of Immigrant and Minority Health*, 15(4), 817-828.
- Kronenberg, F., Cushman, L. F., Wade, C. M., Kalmsus, D., & Chao, M. T. (2006). Race/ethnicity and women's use of complementary and alternative medicine in the United States: Results of a national survey. *American Journal of Public Health*, 96(7), 1236-1242.
- Collins, K. S., Hughes, D. L., Doty, M. M., Ives, B. L., Edwards, J. N., & Tenney, K. (2002). Diverse communities, common concerns – assessing health care quality for minority Americans: Findings from the Commonwealth Fund 2001 Health Care Quality Survey.
- Biblioteca Digital de la medicina tradicional Mexicana (Digital Library of Mexican Traditional Medicine) 2009.
- Valdivia-Correa, B., Gómez-Gutiérrez, C., Uribe, M., & Méndez-Sánchez, N. (2016). Herbal Medicine in Mexico: A Cause of Hepatotoxicity. A Critical Review. *International Journal of Molecular Sciences*, 17(2), 235.
- Rodríguez-Fragoso, L., Reyes-Espárza, J., Burchiel, S., Herrera-Ruiz, D., & Torres, E. (2008). Risks and Benefits of Commonly used Herbal Medicines in Mexico. *Toxicology and Applied Pharmacology*, 227(1), 125-135.
- Alonso-Castro, A. J., Domínguez, J. L., Domínguez, J. L., Campos-Xolapa, N., Zapata-Morales, J. R., Carranza-Alvarez, C., & Maldonado-Miranda, J. J. (2017a). Medicinal plants from North and Central America and the Caribbean considered toxic for humans: The other side of the coin. *Evidenced-Based Complementary and Alternative Medicine*, 2017.
- Sharma, A., Flores-Vallejo, R. C., Cardoso-Taketa, A. C., & Villarreal, M. L. (2017). Antibacterial activities of medicinal plants used in Mexican traditional medicine. *Journal of Ethnopharmacology*, 203, 264-269.
- Rodríguez-Chávez, J. L., Egas, V., Linares, E., Bye, R., Hernández, T., Espinosa-García, F. J., & Delgado, G. (2017). Mexican Arnica (Heterotheca inuloides Cass. Asteraceae: Astereae): Ethnomedicinal uses, chemical constituents and biological properties. *Journal of Ethnopharmacology*, 195, 39-63.
- Alonso-Castro, A. J., Domínguez, F., Maldonado-Miranda, J. L., Castillo-Pérez, L. J., Carranza-Alvarez, C., Solano, E., Orozco-Castellanos, L. M. (2017b). Use of medicinal plants by indigenous peoples in Mexico. *Journal of Ethnopharmacology*, 198, 91-96.
- Shelley, B. M., Sussman, A. L., Williams, R. L., Segal, A. R., & Crabtree, B. F. (2009). 'They don't ask me so I don't tell them': Patient-clinician communication about traditional, complementary, and alternative medicine. *Annals of Family Medicine*, 7(2), 125-135.
- Baxley, S. M., & Ibiayo, K. (2015). Expectations of pregnant women of Mexican origin regarding their health care providers. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 44(3), 389-396.
- Jones, S. (2018). Trust development with the Spanish-speaking Mexican American patient: A Grounded Theory study. *Western Journal of Nursing Research*, 40(6), 799-814.
- Geck, M., Christians, S., Berger-Gonzalez, M., Casu, L., Heinrich, M., & Leonti, M. (2020). Traditional Herbal Medicine in Mesoamerica: Toward Its Evidence Base for Improving Universal Health Coverage. *Frontiers in Pharmacology*.
- Natural Medicines Comprehensive Database <http://naturaldatabase.therapeuticresearch.com/home.aspx?c=&s=ND&x=AutoDetectCookieSupport=1>
- McClafferty, H., Vohra, S., Bailey, M., Brown, M., Esparham, A., Gerstbacher, D., Golani, B., Niemi, A., Sibinga, E., Weyert, J., Ming Yeh, A., & Section on Integrative Medicine (2017). Pediatric Integrative Medicine. *Pediatrics*, 140(3).
- Photos obtained with respect to rights from Columbia.inaturalist.org; photographers: Juan Carlos Garcia Morales, Ricardo Arredondo, and Evan Raskin