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# "THE FAPRONAT CONSORTIUM: ECUADOR'S HERBAL PHARMACOPOEIA, NEEDS AND PROSPECTS"

UnderplaNnet

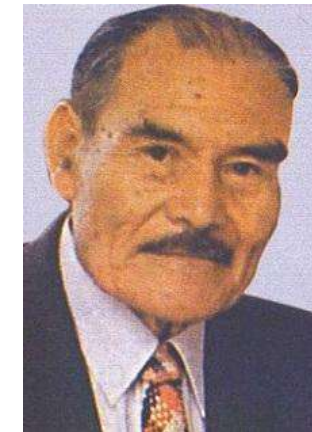
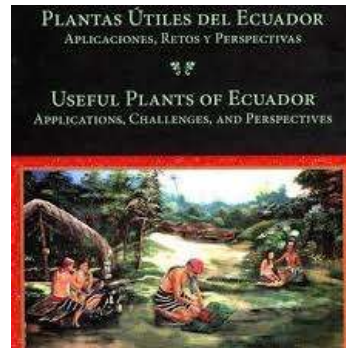
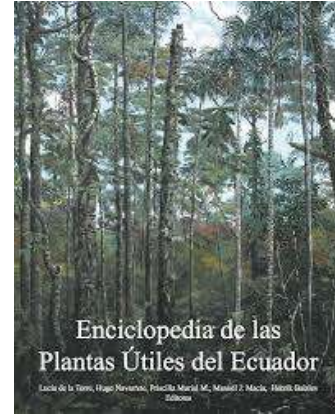
Tena, November 2024



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**Coordinator**



Junio 12, 2024



# INTRODUCTION

- Why such a proposal?

## Biodiversity and multiculturalism

Ethnic and regional diversity, native people, ...

Ancestral knowledge reported in a system poorly organized for outreach and management as a country

High migration, aculturalization, abandonment of the agriculture -few options and perspectives

Indiscriminate exploitation of bioresources - extractivism



# INTRODUCTION

- **Why such a proposal? - reality**

Use of medicinal plants and natural products for treatment, relief, or even diagnosis of health problems

Incorporation of Ancestral practices within the *National Health System*

High percentages of the population (about 70% trust in nature as a source of health)

**Option - but also risk !!!!** →



## JUSTIFICATION



- **False perception of safety –**

(>40% of drugs, 48% of chemotherapeutics, alkaloids, Vinca derivatives)  
alkaloids, Vinca derivatives)

Need for academic-technical support GAP (**WHO guidelines as base**)

Effectiveness, traditional knowledge and preclinical investigations

**Quality control** - chromatographic fingerprinting, phytochemical markers

**Role of universities - governmental control bodies**

Natural variability of species (e.g. *Cannabis* market )

## JUSTIFICATION

- **Contribute at least with **1** IMPORTANT ELEMENT - *future*** technical criteria e.g. active substance, range of extract content, etc.

### **Research consortium working on the topic**

Universities, Governmental Institutions, NGO's, Cultural Associations  
– **ALL together WORKING ON THE TOPIC**

A **TOOL** for the organization, management, recovery, conservation and transfer of the **potential and knowledge** about the bioresources of our country

**INTEGRATING POTENTIAL OF THE PROPOSAL (binding agent)**

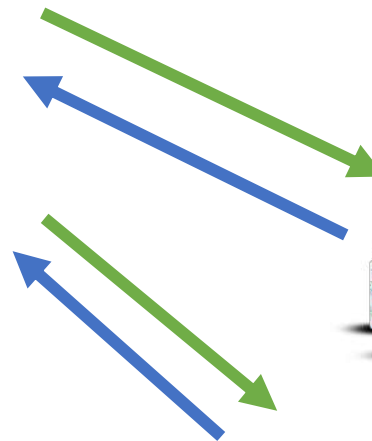




**Farmacopea Herbolaria del Ecuador**

"Conocimiento científico en respaldo a los saberes ancestrales para el bienestar de nuestra sociedad"

<https://farmacopea.ec/>



## BENEFITS

- Need to know own resources

Argentina, Brazil, Chile, Mexico, USA in our continent

- Take advantage of the richness of our territory
- Promote scientific and technological development around a known potential
- Preserve our culture and knowledge for **our** and **future** generations
- Alternatives for the population: at health, culture, cosmovision, economy, .....

# CONTENTS

## • **MONOGRAFÍAS-MONOGRAPHS**

- La estructura propuesta:  
**Español/Kichwa/Inglés**
- Nombre científico/Scientific name-synonyms
- Foto/Photo
- Nombre común/Common name (s)
- Descripción botánica/Botanical description
- Micrografía/caracterización genética  
Micrograph-genetic characterization
- Usos tradicionales/Traditional uses
- \* No implica nuevos estudios etnomédicos

- Principales constituyentes/Main constituents
- Actividad farmacológica/Pharmacological activity
- Toxicidad y/o contraindicaciones Toxicity or  
contraindications
- Preparación de extractos-dosis/Preparation of  
extracts-dosage
- Formas fitofarmacéuticas existentes/Existing  
pharmaceutical forms
- Autenticación-control de  
calidad/Authentication-quality control
- Identificación rápida/Quick identification
- Referencias/Bibliography

$$\frac{A_1 \times m_2 \times p}{A_2 \times m_1 \times 20}$$

- $A_1$  = area of the peak due to irisflorentin in the chromatogram obtained with the test solution;  
 $A_2$  = area of the peak due to irisflorentin in the chromatogram obtained with reference solution (a);  
 $m_1$  = mass of the herbal drug to be examined used to prepare the test solution, in grams;  
 $m_2$  = mass of *irisflorentin* CRS used to prepare reference solution (a), in grams;  
 $p$  = percentage content of irisflorentin in *irisflorentin* CRS.



01/2012:0221  
 corrected 9.2

## BELLADONNA LEAF

### Belladonnae folium

#### DEFINITION

Dried leaf or dried leaf and flowering, and occasionally fruit-bearing, tops of *Atropa belladonna* L.

*Content*: minimum 0.30 per cent of total alkaloids, expressed as hyoscyamine ( $C_{17}H_{23}NO_3$ ;  $M_r$  289.4) (dried drug). The alkaloids consist mainly of hyoscyamine together with small quantities of hyoscyne (scopolamine).

#### CHARACTERS

Slightly nauseous odour.

#### IDENTIFICATION

- A. The leaves are green or brownish-green, slightly darker on the upper surface, often crumpled and rolled and partly matted together in the drug. The leaf is petiolate and the lamina is acute and decurrent. The margin is entire. The flowering stems are flattened and bear at each node a pair of leaves unequal in size, in the axils of which occur singly the flowers or occasionally fruits. The flowers have a gamosepalous calyx and campanulate corolla. The drug may contain fruits, as globular berries, green or brownish-black and surrounded by the persistent calyx with widely spread lobes.
- B. Microscopic examination (2.8.23). The powder is dark green. Examine under a microscope using *chloral hydrate solution R*. The powder shows the following diagnostic characters (Figure 0221.-1): fragments of the lamina showing sinuous-walled epidermal cells with striated cuticle [A, C] and part of the underlying palisade parenchyma [Aa] associated with the upper epidermis [A]; numerous stomata [Ca] more frequent

testa consisting of irregularly sclerified cells [G].

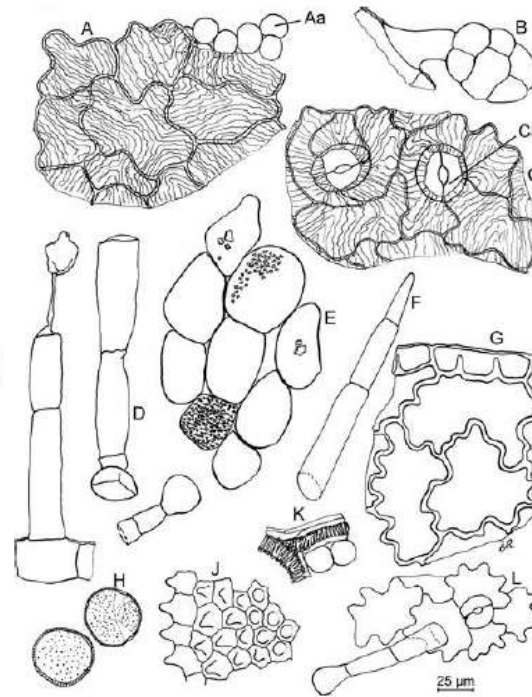


Figure 0221.-1. – Illustration for identification test B of powdered herbal drug of belladonna leaf

- C. Shake 1 g of the powdered herbal drug (180) (2.9.12) with 10 mL of *dilute sulfuric acid R1* for 2 min. Filter and add to the filtrate 1 mL of *concentrated ammonia R* and 5 mL of *water R*. Shake cautiously with 15 mL of *ether R*, avoiding formation of an emulsion. Separate the ether layer and dry over *anhydrous sodium sulfate R*. Filter and evaporate the ether in a porcelain dish. Add 0.5 mL of *fuming nitric acid R* and evaporate to dryness on a water-bath. Add 10 mL of *acetone R* and, dropwise, a 30 g/L solution of *potassium hydroxide R* in *ethanol (96 per cent) R*. A deep violet colour develops.
- D. Examine the chromatograms obtained in the chromatography test.
- Results*: the principal zones in the chromatograms obtained with the test solution are similar in position, colour and size to the principal zones in the chromatograms obtained with the same volume of the reference solution.

#### TESTS

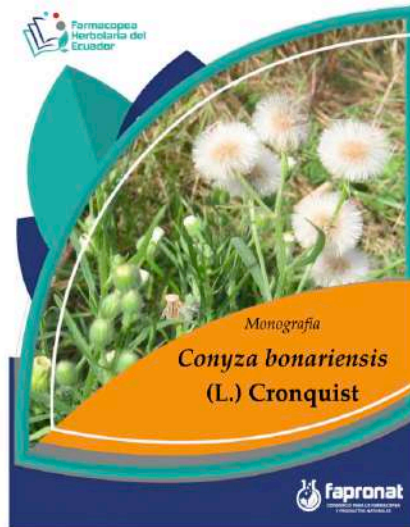
**Chromatography.** Thin-layer chromatography (2.2.27).

*Test solution.* To 0.6 g of the powdered herbal drug (180) (2.9.12) add 15 mL of *dilute sulfuric acid R1*, shake for 15 min





**Azadirachta indica A. Juss**  
Neem



**Conyza bonariensis (L.) Cronquist**  
Pata de Venado



**Ilex Guayusa Loes**  
Guayusa



**Vernonthura patens (Kunth)**  
Laritaco, Chilca



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# FAPRONAT - FARMACOPEDIA

Practical information - GAP, extractive methods,  
phytotherapics, alternative medicines

Information capsules



**WIKIPEDIA**

# WORKING TEAM

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Government

NGO's

Cultural associations and groups

Professionals

## ECUADOR







<http://farmacopea.ec>

**Thanks!!!**