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# The legitimacy of empirical sciences under the oversight of an Ethical Committee? Defending a critical ethnobotany

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**Oral Presentation 613/503: *The legitimacy of empirical sciences under the oversight of an Ethical Committee? Defending a critical ethnobotany***

**Author**<sup>1</sup>: Calvo Redondo, Adolfo.

**Symposium:** *Preservation and Promotion of Traditional Ecological Knowledge in the Era of Open Science: Benefits and Challenges.*

**Coordinators:** Mateo Martín, Jimena; Diazgranados Cadelo, Mauricio; Reyes-García, Victoria.

**Date:** July 25<sup>th</sup>, 2024.

**Session:** Symposium Session 10.

**Event:** XX International Botanical Congress (IBC 2024).

**Location:** IFEMA, Madrid, Spain.

**Abstract**<sup>2</sup>

In my ethnobotanical research in 2018 and my recent sociology-of-science fieldwork in Jujuy (Argentina), I address ethical challenges and question the need for expert committees in empirical sciences. I analyze how certain institutional mechanisms force a choice between the privatization of knowledge or its anonymization in the name of scientific universality.

In Argentina, despite the 2023 Open Science Law (Law 27738), field research remains trapped in neo-developmentalism and patrimonialistic dynamics, especially when accessing biocultural information in an indigenous context. This reflects a dominance relationship of Jujuy institutions over scientists and their civil informants.

The mistrust between academic and indigenist institutions is manifested in police controls and specific protocols for working with Pueblos Originarios (PO). Instead of addressing social exclusion from a Human Rights perspective, a contractual practice is prescribed. Consent is seen as the legal solution to dialogue between "different cultures," leading to clientelistic practices among local authorities and researchers, namely by controlling field access.

The patrimonialistic regime may promote these pre-research contracts to appropriate knowledge in favor to PO interests. Paradoxically, anti-colonial resistance is expressed through an anti-extractive discourse. In practice, then, control over science is transcended through underground dialogues, driven by a "community resistance" ethic that shapes the identity of both native populations and field scientists advocating empirical, inclusive, and critical methodologies within a "decolonial" framework.

Critical ethnobotany is based on a "dialogue of knowledge" from a position of subalternity, promoting "interdisciplinarity" and "institutional coordination" to subvert the hierarchical and authoritarian structures of the neoliberal academic playground. However, this decolonial framework can perpetuate conservative dynamics if it does not overcome mistrust and secrecy in the transmission and production of knowledge.

On a material level, effectively challenging the patrimonialistic regime requires expanding social justice policies by the State, ensuring academic autonomy in designing collaborative projects directly with the public.

**Keywords:** Fieldwork, STS, Biocultural Patrimonialization, Decolonial Science, Dialogue of Knowledges, Jujuy (Argentina).

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<sup>2</sup>**Book of Abstracts:** *XX International Botanical Congress IBC 2024, Spain. Book of Abstracts. Oral presentations. (2024). Fase 20 Ediciones. (Abstract 171.1, p. 527).*

## Lecture and power point presentation

### SLIDE 1

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**The legitimacy of empirical sciences under the oversight of an Ethical Committee?  
Defending a critical ethnobotany**  
~ 613/503 ~

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**Symposium Session 10:** Mateo Martín, Díazgranados Cadelo, Reyes-García (Coord.), 25<sup>th</sup> July 2024. PRESERVATION AND PROMOTION OF TRADITIONAL ECOLOGICAL KNOWLEDGE IN THE ERA OF OPEN SCIENCE: BENEFITS AND CHALLENGES.

SEBOT SOCIEDAD BOTÁNICA ESPAÑOLA  
CSIC Consejo Superior de Investigaciones Científicas  
REAL JARDÍN BOTÁNICO  
GOBIERNO DE ESPAÑA MINISTERIO DE CIENCIA, INNOVACION Y UNIVERSIDADES  
Fase20 National Foundation for Scientific Research

I am an ethnobotanist pursuing a PhD in social sciences at Sorbonne Nouvelle University's Center for Research and Documentation on the Americas, called CREDA. I belong to the team research focused on American Ecological Transitions, approached through Science, Technology, and Society Studies. I just completed in July my second five-month fieldwork in Jujuy, Argentina.

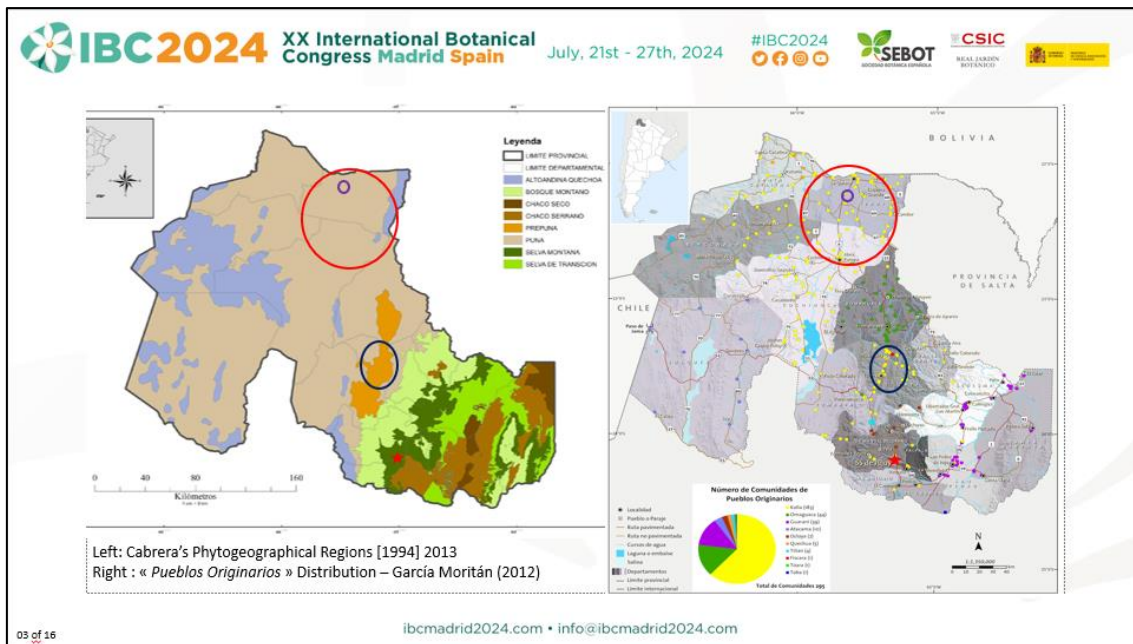
My research explores field sciences in rural Jujuy, especially ethnobotany. I analyse how public research experts, included myself, handle non-conventional medicinal practices with plants. A key issue I tackle is the access process to fieldwork. I analyze how international regulations on biocultural research, specially within an indigenist legal framework, like Nagoya Protocol, are applied and their impact on empirical research.

## SLIDE 2



The province of Jujuy is situated in the far north of Argentina. It is intersected by the Tropic of Capricorn and features a highly diverse and heterogeneous landscape. This diversity results from its steep altitudinal gradient, ranging from 300 to 6,200 meters. This diverse landscape results in a rich environmental and biological diversity. Jujuy province boasts the highest diversity of vascular plants in Argentina, at the family, genus, and species levels, and contains the greatest number of endemic species.

## SLIDE 3

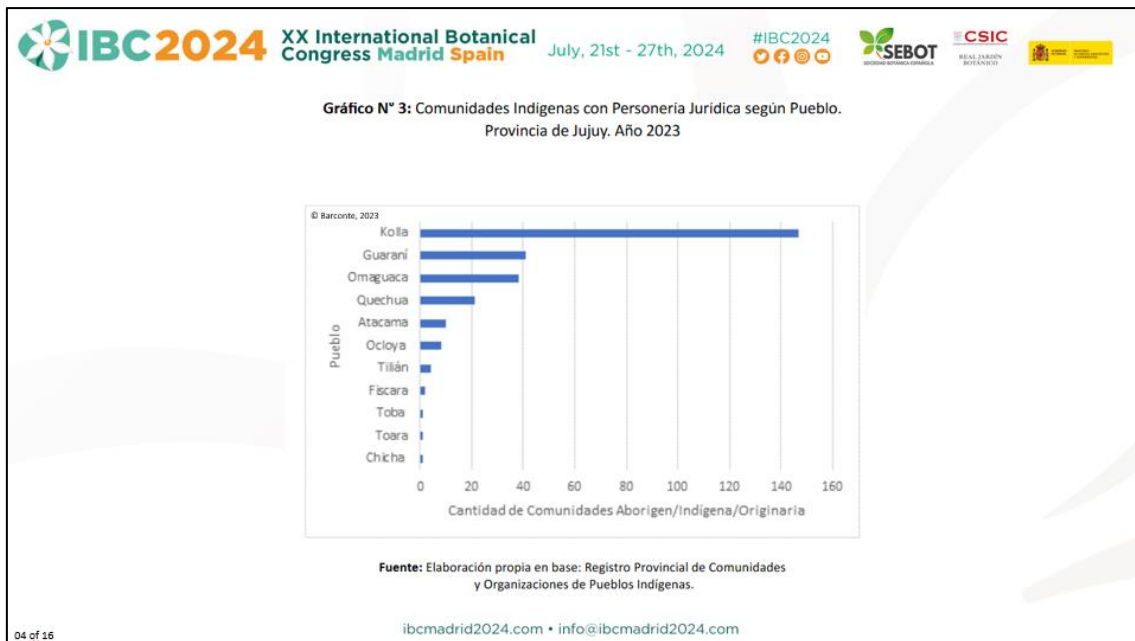


Jujuy's biocultural richness is sustained by local populations, and it's shaped by a dynamic history, including Tiwanaku, Inca, and Spanish colonizations, and modern tensions between welfare state and neoliberal politics; between nationalism and multiculturalism.

In Jujuy, indigenous communities generally form small civil associations and are not always isolated from other groups, such as neighbouring indigenous associations, criollos, European migrant descendants, and Bolivian Andes migrants. In rural regions like Puna and Quebrada, however, indigenous institutions hold significant political influence and agency.



## SLIDE 4



Between 1992 and 2023, the number of associations censused in the provincial Registry reached 274. These associations self-identify as belonging to 11 peoples: Kolla and Guaraní, being the most important. Almost half of communities is located in the Puna Region. A third inhabits the Quebrada region with 85 communities. The rest inhabits the Valles and the Yungas forests.

## SLIDE 5


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**Can Traditional Ecological Knowledge be integrated into Argentina's Public Healthcare System Under Nagoya's Research Regulations?**



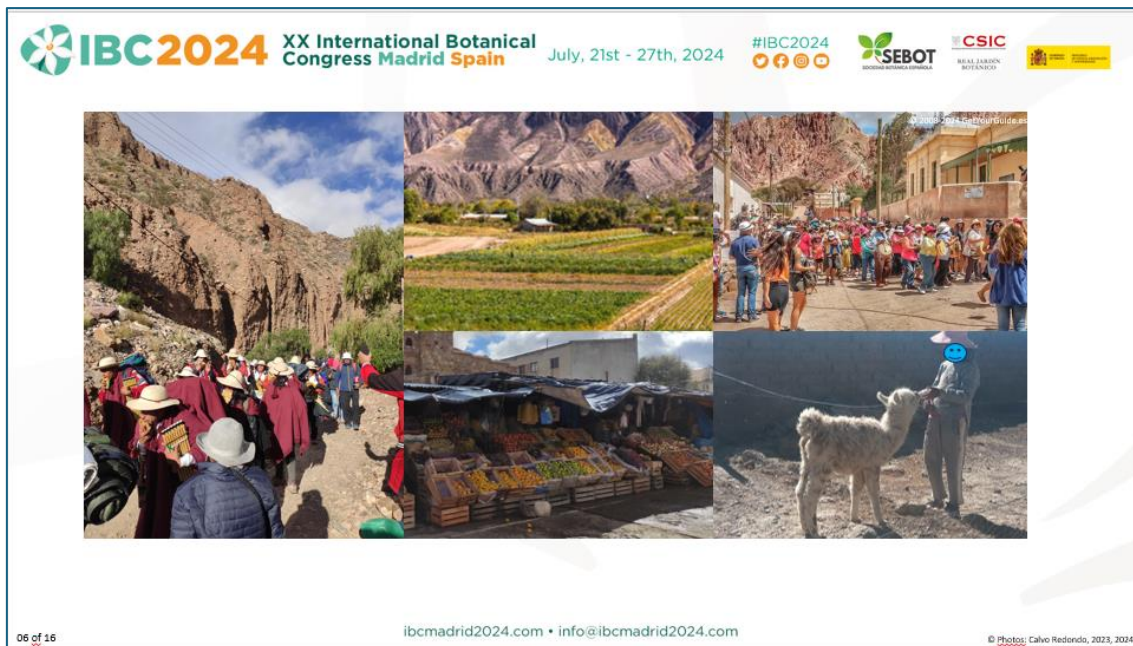
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In Argentina, research, education, and healthcare are public and supported by taxpayers. Yet, in many rural regions, these services are scarce due to geographic isolation or sociocultural barriers. Intercultural health and education programs, along with participatory action research are crucial for public services since they work with no commercial interests. Ethnobotanists can help study medicinal plants in the Andean cultural area, where small farmers and herders still preserve traditional knowledge. This knowledge is passed through family and community systems, often ritualized with Andean and Christian elements like the cult of Pachamama, Santiago, and Carnival festivities.



## SLIDE 6



These traditions blend in a landscape shaped by urbanization over the past century. Recent decades have seen tourism growth, cross-border trade with Bolivia and Chile, the rise of indigenous institutions, neo-rural migration, and new religious practices like evangelism. These changes have transformed the region's society and cultural practices.

Social demands have also evolved. While the healthcare system has expanded its reach, rural, isolated regions still rely heavily on medicinal plants. This isolation often drives young people to urban areas, disrupting the familial transmission of biocultural knowledge. Older rural populations view this exodus as a threat to their identity and social value. Despite this, medicinal plants are also present in urban areas, where deficiencies in primary healthcare are often addressed through alternative medicines. These services are sought through informal and family networks, where "traditional knowledge" retains significant social prestige among rural emigrants. However, this "traditional" label is more of an identity marker and does not always reflect current rural healthcare practices. "Traditional knowledge" is crucial for understanding local indigenist discourse focused on biocultural patrimonialization by some indigenous associations and local institutions.

I prefer to differentiate between conventional and non-conventional practices. This analytical choice is not neutral but is aligned with public intercultural healthcare institutions.

## SLIDE 7



In 2018, I conducted an ethnopharmacological study in La Puna, with institutional support from INECHOA and UNJu. (And with a “bit of help” from INTA)



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In 2018, I conducted an ethnopharmacological study in La Puna with local ethnobotanists from the University, facilitated by INTA workers. INTA, focused on agronomic development, provided resources to small farmers, which helped me gain rural informants' acceptance quickly. My survey lasted three weeks.

However, my mentors only permitted publication on "European plants incorporated into traditional medicinal practices," avoiding native resources to prevent accusations of extractivism by indigenous institutions. Despite having all necessary permissions, publishing my findings would have endangered my colleagues.

Since the approval of the Nagoya provincial law in 2013, biocultural researchers in Jujuy have struggled to collaborate with indigenous institutions. The law promoted genetic resource commercialization and created false expectations among indigenous associations. Public researchers, focused on conservation and intercultural education, couldn't meet private economic demands. Although the law recognizes indigenous rights to intangible heritage, ethnobotany studies show that popular knowledge transcends individual associations. This has led to unfounded biopiracy accusations, fostering mistrust between researchers and indigenous elites, while

adding performative bureaucracy. Out of 128 biological research permissions, only 3 had commercial purposes for ornamental flowers.

Due to these challenges, Jujuy ethnobotanical researchers shifted to urban medicinal plant markets as a proxy for rural fieldwork.

The Nagoya law intensified existing issues, such as those following the 2003 declaration of Quebrada de Humahuaca as a UNESCO World Heritage site, which favored tourism development. Indigenous associations capitalized on tourism and institutional recognition, gaining political influence and access to subsidies, creating competition among researchers for indigenous attention and reputation.

Most local ethnobotany researchers lacked the financial or legal capacity to address the patrimonial interests of indigenous associations and faced tension when proposing open intercultural research objectives on that context.

## SLIDE 8


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- 2023:** *When TEKs go public...* In 2023 I dialogued with Jujuy Healthcare Ministry officials to gain access to workers of the National Plan of Healthcare for Indigenous Peoples (PNSPI): the “Intercultural mediators”, and their network. Their Ethical dispositive defended that (274?) indigenous associations should approve before...



**Seeing Like a State**  
How Certain Schemes to Improve the Human Condition Have Failed  
James C. Scott





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For my doctoral investigation, I aimed to address the tension between interculturality and economic development under Nagoya’s framework. I spent several months engaging with Jujuy’s Healthcare Ministry officials to access indigenous informants in the National Plan of Healthcare for Indigenous Peoples (PNSPI), specifically the “Intercultural Mediators.” Our objective was to investigate the social demand among rural highland populations for formalizing Andean medicine through phytotherapy in Primary Healthcare.

Although Argentina’s healthcare system is universal, it fails to recognize the value of traditional knowledge about medicinal plants. Ministry officials encouraged me to use my ethnobotanical research skills to highlight this medicinal culture. However, in order to collaborate, I had to submit my research protocol to their Ethics Committee, which resulted in a three-month methodological debate. The officials, lacking training in interculturality and ethnographic methods, attempted to standardize my research, adding layers of unnecessary bureaucracy: I had to submit my research plan to Indigenous authorities under the Nagoya Protocol, which involved navigating a complex network of over 200 potential associations. Ethical standards for intercultural research varied depending on the informants’ affiliations, further complicating the intercultural process.

Officials justified these measures as safeguards against “extractivism,” citing concerns over biopiracy accusations from Indigenous groups. However, this situation underscored the limitations of the Nagoya Protocol in the context of intercultural research with non-commercial and open-science objectives. Rather than resolving conflicts, the protocol often fabricates them, fostering a climate of mistrust between Indigenous institutions and public researchers.

This week, we mourn the passing of anthropologist James Scott, whose work left an indelible mark on the study of power dynamics in rural communities. In *Seeing Like a State* (1998), Scott argued that authoritarian states often categorize populations in ways that make them “legible,” meaning easier to control and manipulate. The interculturality we advocate directly challenges the current indigenist approach in Jujuy, which reduces complex political conflicts to simplistic, commercial solutions. Instead, we emphasize the richness, complexity, and autonomy of local knowledge systems, rooted in a diverse and dynamic territory.



## SLIDE 9



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2023 at La Intermedia's Kolla Community



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Fortunately, I collaborated with Roxana Guzmán on a project with La Comunidad de La Intermedia, focusing on sexual and reproductive health among women in La Puna. During an assembly mission, I assisted them. To conduct her research, Roxana had to produce an additional report on the community's history to help them gain political autonomy and recognition from the government. Although her research served the community's interests, creating “payback” material is a common but problematic practice, as it imposes additional burdens on researchers and can limit the scope and impact of their primary research.

## SLIDE 10



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**2024. EBASICOKOTI *Extensión***  
**Projet: The Etnobotany Applied to Intercultural Healthcare with Kolla Communities of Tilcara.**

The “extension projects”: an educational research modality as Open Science dispositive adapted to rural contexts in Argentina.

(And its (per)version of indigenous associations: the “payback” research).

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In 2024, my protocol with the Intercultural Mediators of the Jujuy’s Healthcare Ministry stalled due to a political crisis. Despite this setback, my colleague Roxana and I presented our research objectives to Tilcara authorities, supported by the National University of Jujuy. Our goal was to report on non-conventional medicinal practices with plants in rural regions to support intercultural healthcare policies.

We proposed a project with participatory workshops for the broader Kolla community, framing it as "extension" work to gain field access. This ensured immediate academic feedback to informants, announced as "payback" to avoid exclusive claims by single associations.

We planned to create a "plant's brochure" for an open digital repository. Although initially reluctant, some sanitary agents accepted our project, with the formal support of the hospital authorities.

I led an ethnobotanical survey in Huacalera, supported by local authorities and teachers. I conducted participatory observation with herb sellers in Tilcara's market and visited neo-rural producers. In Quebrada, everyone used and shared knowledge about medicinal

plants, regardless of indigenous association affiliation, as seen with the three women I accompanied at the Tilcara Market.

## SLIDE 11

**Su Desecho**

Quien suscribe la Comunidad Aborigen Cueva del Inca, con Personería Jurídica Resolución N°001102-B5-01 y N° 001211-B5-02 con domicilio en B° Villa Florida, Departamento de Tlicara, tiene el agrado de dirigirse a Ud. con el motivo de transmitir la respuesta a la nota presentada en Asamblea comunitaria, la misma resuelve lo siguiente, solicitamos explícite de qué manera Ud. y su equipo van a proceder para cumplir el Protocolo de Nagoya sobre acceso a los recursos genéticos y la participación justa y equitativa de nuestra comunidad en los beneficios derivados de la utilización de nuestro conocimiento y recursos, que se inscribe bajo la órbita del Convenio sobre la Diversidad Biológica (CDB) y de qué manera van a garantizar la protección de nuestro conocimiento ancestral de la biopiratería, una vez que publiquen sus resultados. También se solicita un documento donde conste que se ha realizado el Proyecto de Extensión denominado "La Etnobotánica Aplicada a la Salud Intercultural con Comunidades en Kollas de Tlicara (EBASICOKOTI)" en forma coparticipativa, como así también se solicita desde el taller y capacitación elaborar una cartilla de dichas plantas medicinales con sus respectivas propiedades, y avalado, otorgado con sello, firma de Uds. y sus instituciones al cual pertenecen esto con el fin de ser compartido entre los miembros de comunidad y quede documentado y conservado en nuestra institución.

Ya habiendo presentado nuestras solicitudes e inquietudes y sin otro motivo nos despedimos cordialmente de Ud.

COMUNIDAD ABORIGEN

**Comunidad Aborigen: We request that you explicitly detail how you and your team will proceed to **comply with the Nagoya Protocol** on access to genetic resources and the fair and equitable sharing of benefits arising from the utilization of our knowledge and resources [...] and how you will ensure the **protection of our ancestral knowledge from biopiracy once you publish your results.** [...] It is **requested** that from the workshop and training, a **booklet** on these medicinal plants be prepared [...] to be shared among the community members **and remain [...]** in our institution.**

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During the ethnobotanical surveys in April and May, I attempt to engage with two key communities in Tlicara. The first declined to share their knowledge, as they saw no tangible benefit. The second community, led by a former nurse, expressed support for our project. However, the Assembly requested the creation of an exclusive brochure, useful for their tourism enterprise, invoking the Nagoya framework. As we were unable to accommodate this specific request, she proposed holding a workshop at the municipality for interested individuals and asked for legal information on open science research. In the end, I withdrew my request for collaboration but provided the legal information to help support future intercultural programs.

## SLIDE 12


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**Earning Legitimacy through “extension projects” to sustain Open Science**



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As planned, we conducted an open workshop in Huacalera with 32 participants, and some members of several communities attended, also medicinal plants producers, informal herb sellers, health professionals, environmental activists, and some ethnobotanist. It was very interesting that all the participants were women except two people and that reveals the gender division of care and production on Andes society which is socially transversal through socioeconomical classes.



## SLIDE 13

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Airampo, Ayrampu

Veneno por dentro, remedio por fuera

1. *Ricinus communis* L.
2. *Astragalus garbancillo* Cab.
3. *Nicotiana glauca* Graham
4. *Cestrum parqui* L'Hér.

MANUAL de PLANTAS para la SALUD

BOTIQUIN ANCESTRAL DE LA MUNICIPALIDAD INDÍGENA DE TILCARA

HAL science open access

- Rojo, V. et al. (2024). Plantas de Santa Catalina (V. Rojo, Ed.: 1ª). Mil Tintas SRL. [https://www.vicam.org.ar/libro2024/2024\\_libroPlantasStaCatalina\\_Digital.pdf](https://www.vicam.org.ar/libro2024/2024_libroPlantasStaCatalina_Digital.pdf)
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In educational intervention contexts, creating manuals on medicinal plants is very common and highly requested by the public. In the top left, I show an example of a plant booklet made by VICAM in the Puna region of Santa Catalina through community workshops, where participants are listed as co-authors. This work is available online. Below on the left, there is a photo of a hand-made manual with plant drawings and phytotherapeutical recommendations, distributed by Dr. Romano during her medical visits to rural areas where conventional treatments are not accessible. On the right, we see an initiative by a former mayor of Tilcara to create a plant guide, also available online.

Open science tools facilitate the creation of educational materials. For example, on the right, I highlight a slide from the educational material I used to facilitate my workshops on medicinal plants, which is available in the French State digital repository, HAL, where all publicly funded researchers in France must publish their scientific output.



## SLIDE 14

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 SEBOT REAL LEONARDO BOTANICO

- Alonso, J., & Desmarchelier, C. (2015). *Plantas Medicinales Autóctonas de la Argentina: Bases Científicas para su Aplicación en Atención Primaria de la Salud*. Corpus.
  - Pto. "cultivando salud" (Misiones, Santa Fe y Buenos Aires)
- Zalles Asín, J., & De Lucca D., M. F. (1993). *Utasan, Utjir, Qollanaka: Medicinas junto a nuestra Casa. Descripción y Uso de 100 Plantas Medicinales del Altiplano Boliviano*. (2<sup>a</sup>). AECI-OTC: Agencia Española de Cooperación Internacional- Oficina Técnica de Cooperación en La Paz (Bolivia).

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Here are two more examples of booklets for healthcare workers. The first was created by Desmarchelier's team as part of an intercultural healthcare program in Northeast Argentina, and the second is an Andean phytotherapy guide by Bolivian colleagues. Both are available online. However, there is no similar work for Northwest Argentina. These two publications are educational and of higher scientific quality. We aim to use our ethnobotanical survey to create something similar, ideally edited under peer-review standards to avoid the errors and bioethical issues, common in many educational plant booklets.

## SLIDE 15



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**Conclusion:**

Our "extensionst" experience suggests that transcending the current "payback" framework of Jujuy's implementation of the Nagoya Protocol could better align with the principles of interculturality and support the goals of open science research initiatives, particularly in relation to the formalization of medicinal Traditional Ecological Knowledge (TEK).

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## Conclusion:

While the Nagoya Protocol regulates and promotes private research, it has not successfully advanced regional phytochemical research, either economically or through effective regulation. Instead, it creates obstacles for public research initiatives aimed at fostering interculturality by reinforcing a commercial and extractivist framework. This dynamic, when combined with a decolonial discourse, fosters mistrust between rural Indigenous institutions and public researchers, ultimately leading to stagnation and inaction.

The bureaucratic evaluation of healthcare research protocols by ethics committees, especially those involving traditional ecological knowledge (TEK), can act as a conservative mechanism that restricts access to non-commercial research and impedes coherent intercultural interventions, particularly in Indigenous contexts like rural regions of Jujuy.

Nevertheless, our recent extension project, EBASICOKOTI, demonstrates that successful exchanges in fieldwork are possible when public researchers address social demands for transdisciplinarity and participation.

Ethnobotany-based "extension" projects serve as a valuable methodology to foster interculturality within a non-commercial framework in Jujuy. However, Open Science initiatives and extension services involve material costs, raising the need for public debates around research funding to ensure innovation, particularly in an intercultural public healthcare system.

## SLIDE 16 THANKS SLIDE

The slide features a central photograph of a mountainous landscape with a dirt path leading through rocky terrain. Overlaid on the image is the text "¡Muchas gracias!" in a large, white, sans-serif font. Below this, in a smaller white font, is the name "Adolfo Calvo Redondo (CREDA)" and the email address "adolcr2@hotmail.com".

At the top of the slide, there is a header with the following elements from left to right: the IBC2024 logo (a stylized flower), the text "IBC2024 XX International Botanical Congress Madrid Spain", the dates "July, 21st - 27th, 2024", the hashtag "#IBC2024" with social media icons for Facebook, Twitter, and Instagram, the RSEBOT logo, the CSIC logo (Real Jardín Botánico), and a small yellow logo.

In the bottom left corner, it says "16 of 16". In the bottom center, it provides the website "ibcmadrid2024.com" and email "info@ibcmadrid2024.com". In the bottom right corner, there are Creative Commons Attribution-NonCommercial-ShareAlike (CC BY-NC-SA) license icons.

End of presentation.

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