

The Latin American Studies Book Series

María Lelia Pochettino  
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# Nature(s) in Construction

Ethnobiology in the Confluence  
of Actors, Territories and Disciplines

MOREMEDIA



Springer

# Post-Conquest Early Changes in Phyto-cultural Systems from the Analysis of Food: A Synthesis for the Argentine Arid Diagonal with Emphasis on the “*Gobernación de Tucumán*”—Governorate of Tucumán



M. Laura López , Vanina Castellón, Romina Grana , Diego Andreoni ,  
M. Laura Ciampagna , Diego Gobbo , and Aylen Capparelli 

## Introduction

The historical development of societies involves continuities and discontinuities in its political, economic, and other sociocultural aspects, which are associated with different situations arising both from the environment in which they are inserted and from the relationships established with other social groups (García Canclini 1990). These restructurings to new situations can be studied from different variables and food is one of them. The term food is understood here as an action that transcends the nutritional needs of feeding, and refers both to the ingredients themselves, and to the ways in which they are prepared and consumed—in the form of meals and drinking—as well as to the contexts in which eating takes place—space, time, actors, tableware used, among others (Capparelli et al. 2015 and bibliography cited therein). The study of food is relevant to this paper for several reasons: firstly, because it is embedded in all the cultural aspects mentioned above, such as economics, politics, social and belief systems (Goody 1982; Twiss 2007, 2012); secondly,

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M. L. López · D. Andreoni · M. L. Ciampagna · D. Gobbo · A. Capparelli (✉) · V. Castellón  
División Arqueología, Facultad de Ciencias Naturales y Museo (FCNyM), Universidad  
Nacional de La Plata (UNLP), Consejo Nacional de Investigaciones Científicas y Técnicas  
(CONICET), La Plata, Argentina  
e-mail: [aylencapparelli@fcnym.unlp.edu.ar](mailto:aylencapparelli@fcnym.unlp.edu.ar)

R. Grana

Centro de Investigaciones de la Facultad de Filosofía y Humanidades (CIFYH), Universidad  
Nacional de Córdoba (UNC), Córdoba, Argentina

because it is a key factor, especially in the particular situations of conquest and colonization (Dietler 2006).

Biocultural system refers to the property that emerges from ecosystems that experienced a significant human presence, which involved the management and use of their components over time that contribute to the arising of co-evolutionarily constructed biological and cultural dynamics (Oviedo and Maffi 2000). We refer to phyto-cultural systems as the management and use of the plant component of biocultural systems over time. These systems may experiment, in determinate conjunctures, “selective incorporation” of exogenous elements that “operates according to a specific cultural logic, but also have a continual transformative effect in the reproduction of culture” (Dietler 2006: 224). One of the main triggers of selective incorporation is the encounter with other social groups and cultural connection (Stockhammer 2016). In the framework of these incorporations, resignifications of what is newly incorporated are produced, which does not necessarily imply that they are perceived—used, tasted—in the same way as in its original context (Dietler 2010). In the situations of conquest and colonization, the transformative changes in the receiving cultures go beyond the simple incorporation and resignification of an exogenous element, and are also a consequence of the particular objectives of each colonialism and the methods by which they were carried out (Crosby 2003; Lera 2022; Matos de Souza 2021).

In the Americas, Spanish colonialism had an extractive objective, although it also included the incorporation of European plants, animals and technologies during the sixteenth and seventeenth centuries as part of a control mechanism that sought to change the host culture by inculcating European values through its material culture (Dietler 2010). At the same time, other plants were introduced unintentionally, mimicked among crops, or associated with the different types of livestock that were introduced from Europe and Asia. For their part, the Spaniards who set foot on American soil also experienced changes in their diets, many times driven by famine, and others by the mere taste or need to eat. This, in one way or another, gave rise to the resignification of some American products and their validation as permitted foods, in the heart of what up to that time was governed by the values influenced by Galician medicine (Theory of Humours) and Christianity (Ramírez Vidal 2010; Saldarriaga 1999, 2010). Therefore, we may consider that after the Spanish conquest of America, there is a process of intermingling and exchange between the cultures that meet, which, at the beginning, existed independently of each other, but later experiment “hybridization” (*sensu* García Canclini 1990) or “mestizaje” (*sensu* Gruzinski 2000) occurs in a way that generates new practices and new associated materiality.

It is within this framework that the general objective of this chapter is to characterize the changes that occurred in the phyto-cultural systems of the Argentine arid diagonal (DAA)<sup>1</sup> after the Spanish conquest, based on the study of food. This objective would be reached, firstly, by evaluating the trajectory of the ingredients

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<sup>1</sup> See Capparelli (2022), and the papers therein cited, for the definition of this area.

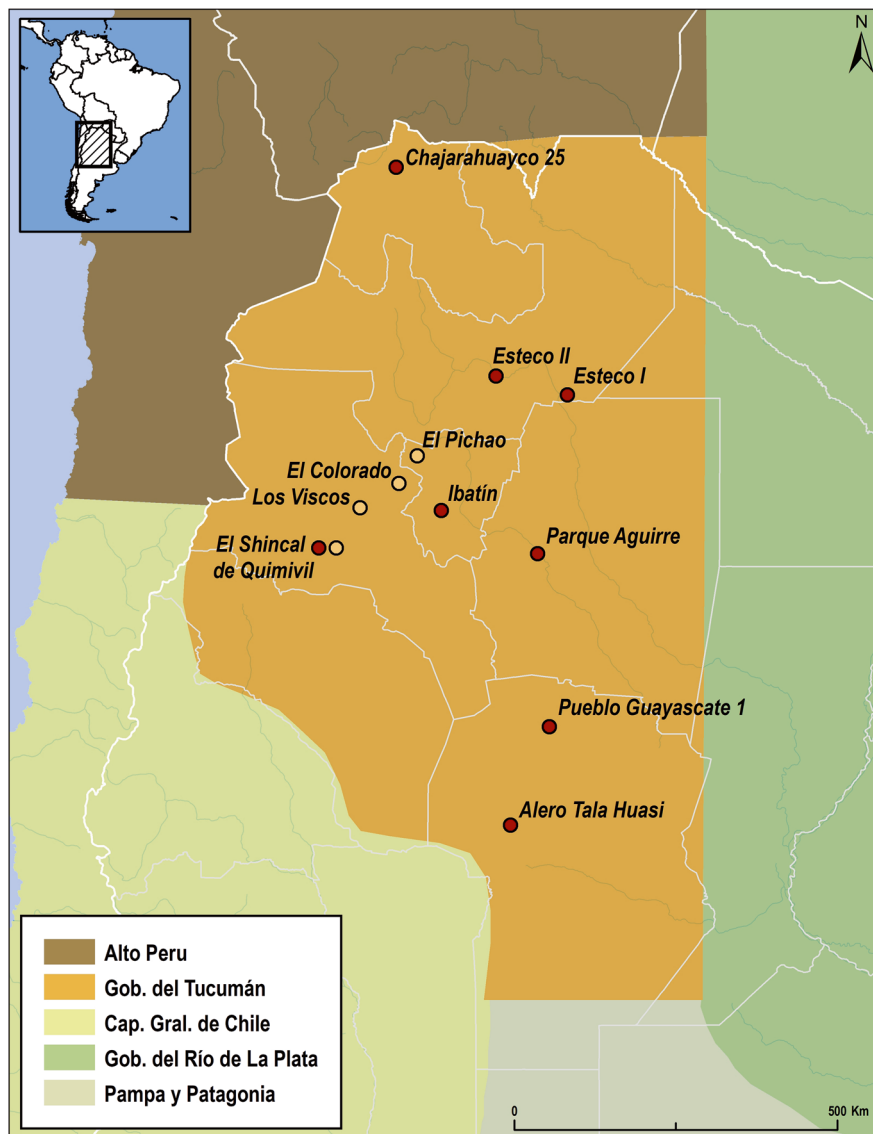
and the culinary preparations, as well as their possible cultural resignifications within the territory of the *Gobernación de Tucumán*—comprising the archaeological areas of the Argentinian Northwest (NWA) and Sierras Centrales—throughout the Early Colonial Period (ECP, sixteenth–seventeenth centuries); and secondly, by discussing results in terms of the interaction of this territory with neighbouring areas such as Cuyo, Pampa and Patagonia.

## **Brief Historical Summary of the Formation of the *Gobernación de Tucumán***

The formation of the *Gobernación de Tucumán* in the NWA was a complex process marked by conquest, colonization and indigenous resistance. This historical summary, based on various sources (Lobato and Suriano 2000; Bixio and Berberían 2017; Carminiani 2018; Castellón 2022), highlights the key events that shaped the region's governance. In 1536, the first Spanish expedition, led by D. de Almagro and accompanied by Paullo Inca, encountered strong opposition from indigenous societies in the Jujuy and Calchaqués valleys. Subsequently, in 1543, another group of Spaniards, known as the expedition of Diego de Rojas, invaded the Tucumán lands, but their attempts to settle there were thwarted by indigenous resistance, especially in the Puna and Calchaqués and Jujuy valleys (highlands).

Between 1549 and 1556, several unsuccessful attempts at establishing settlements were made. Finally, in 1553, the city of Santiago del Estero was founded on the banks of the Dulce River. During this period, “friendly” indigenous groups were present in the foothills of Aconquija and the Mesopotamia of Santiago del Estero (lowlands), while highland groups remained hostile. From 1556 to 1562, under Pérez de Zurita's rule, a period of relative peace allowed the foundation of towns in the Calchaqués valleys and the first foundation of San Salvador de Jujuy (first city in Jujuy province), called Nieva. However, in 1562, when a new authority arrived from Chile, the peace was disrupted, leading to the great rebellion that engulfed both highlands and lowlands (Palomeque 2009). Although several cities were destroyed in the conflict, including Nieva, the *Gobernación de Tucumán, Juríes y Diaguitas* was established in 1563, under the jurisdiction of the *Audiencia de Charcas* within the Viceroyalty of Peru.

After suppressing the rebellion, the Spaniards were left occupying only the lowlands, and their route to Chile was interrupted. They founded San Miguel de Tucumán in 1565 and Nuestra Señora de Talavera in 1566 to secure their position in the lowlands and pacify the route to Charcas. In 1573, Córdoba was founded for two reasons: to link Charcas with Spain through a chain of cities in Tucumán for access to Buenos Aires and to facilitate communication between Chile, Charcas and Spain across the Atlantic. The *Gobernación de Tucumán, Juríes, Diaguitas, y Comechingones*, along with their respective jurisdictions, was established from this point (Fig. 1).



**Fig. 1** Map showing the area occupied by the *Gobernación de Tucumán*—and its neighbouring areas—and the archaeological sites that, up to the present, count with archaeobotanical data coming from Hispanic–indigenous (empty circles) and/or early colonial contexts (red circles)

The second foundation of the city San Salvador de Jujuy, called Alava, was made in 1575 to protect the mining centre of Potosí and the colonized area from aggressive people in the eastern lowlands. However, indigenous offensives led to the destruction of Alava and other attempted settlements in the Calchaqués valleys

until 1577. In 1582, the city of Salta was founded, but it faced continuous indigenous sieges, leading to instability. Later, the Spaniards launched military offensives, occupying the Puna and encircling the rebellious areas in the Calchaquíes valleys, which finally allowed safe passage to Charcas. Another military offensive consolidated Salta and led to the foundation of La Rioja in 1593. Finally, with the support of the residents of Salta, the definitive third foundation of the city of San Salvador de Jujuy was established in 1591.

In conclusion, the formation of the *Gobernación de Tucumán* was a tumultuous journey shaped by indigenous resistance and the Spaniards' efforts to consolidate their position in the region.

## Materials and Methods

This work presents a review of both published and unpublished information on the *Gobernación de Tucumán*, drawing from written documentary sources dating back to the sixteenth and seventeenth centuries—some of them extending to the eighteenth and nineteenth centuries—as well as archaeobotanical evidence. The former includes transcriptions of primary sources and analysis by historians and archaeo/ethnobotanists. The archaeobotanical evidence involves an exhaustive compilation of macro- and microremains recovered from the region, as well as some considerations regarding the concept of ECP. While the written sources indicate the ECP as a period of effective Spanish occupation, the archaeobotanical evidence distinguishes two contexts within it: the Hispanic–indigenous context, representing contact between indigenous people and Spaniards without local colonial rule; and the proper Colonial context, where Spaniards held political, economic and social dominance. This distinction was adapted from that previously made by Nuñez Regueiro (1974) and discussed in Capparelli et al. (2005). In the Colonial context, lands and indigenous groups were distributed among the first Spaniards through *Mercedes* and *Encomiendas*, and indigenous people began paying tribute to the Crown in various ways (Castro Olañeta 2010; Faberman and Boixados 2006).

## Results

The results obtained are organized according to the type of data source.

**Table 1** Plants mentioned by the written documentary sources as circulating within the *Gobernación de Tucumán* during the sixteenth–seventeenth centuries

Locality (modern province)	Century	Plant	Source
Jujuy and its jurisdiction (Jujuy)	Sixteenth–present day	<i>Maíz</i> ( <i>Zea mays</i> ); <i>zapallo</i> ( <i>Cucurbita</i> spp.); <i>porotos/frisoles</i> ( <i>Phaseolus</i> spp.); <i>ají/axí</i> ( <i>Capsicum</i> sp.); <b>trigo</b> ( <i>Triticum</i> spp.); <b>cebada</b> ( <i>Hordeum vulgare</i> subsp. <i>vulgare</i> ); <b>árboles frutales de Castilla/de España</b> ; <b>viñas/viñuelas/parrales/uvas</b> ( <i>Vitis vinifera</i> ); <b>durazno</b> ( <i>Prunus persica</i> ); <b>caña de azúcar</b> ( <i>Saccharum officinarum</i> )	Sica (2005); Lambaré (2015); Castellón (2021, 2022 and papers therein cited)
Nuestra Señora de Talavera (Salta)	Sixteenth–seventeenth	<i>Algarrobos, vinal</i> and <i>quitataco</i> ( <i>Neltuma</i> , ex <i>Prosopis</i> spp.); <i>chañar</i> ( <i>Geoffroea decorticans</i> ); <i>mistol</i> ( <i>Sarcomphalus mistol</i> ); <i>ají/axí</i> ( <i>Capsicum</i> sp.); <i>batata</i> ( <i>Ipomoea batatas</i> ); <i>maíz</i> ; <i>papa</i> ( <i>Solanum tuberosum</i> ), <i>calabazas/zapallos/cidra</i> ( <i>Cucurbita</i> spp.); <i>asafrán</i> ; <i>coro, coto</i> ( <i>Nicotiana paa/Trichocline</i> sp.); <i>ajiquimas</i> ( <i>Pachyrhizus</i> sp.); <i>quinoa</i> ( <i>Chenopodium quinoa/Amaranthus hybridus</i> ); <i>raíces ponzoñosas</i> ; <i>contrayerba</i> ; <i>coca</i> ( <i>Erythroxylon coca</i> ); <b>tunas</b> ( <i>Opuntia ficus-indica</i> ); <b>árboles frutales de Castilla/de España</b> ; <b>albarcoques</b> ( <i>Prunus armeniaca</i> ); <b>duraznos</b> ; <b>granadas</b> ( <i>Punica granatum</i> ); <b>higueras/brevas/higos</b> ( <i>Ficus carica</i> ); <b>manzanas</b> ( <i>Malus pumila</i> ); <b>membrillos</b> ( <i>Cydonia oblonga</i> ); <b>naranjas</b> ( <i>Citrus × aurantium</i> ); <b>perales</b> ( <i>Pyrus communis</i> ); <b>viñas/viñuelas/parrales/uvas</b> ; <b>cebada, trigo</b> ; <b>melones</b> ( <i>Cucumis melo</i> ); <b>sandías</b> ( <i>Citrullus lanatus</i> ); <b>pepinos</b> ( <i>Cucumis sativus</i> ); <b>legumbres de España</b> ; <b>garbanzos</b> ( <i>Cicer arietinum</i> ); <b>ajos</b> ( <i>Allium sativus</i> ), <b>cebollas</b> ( <i>Allium cepa</i> ); <b>coles</b> ( <i>Brassica oleracea</i> ); <b>lechugas</b> ( <i>Lactuca</i> sp.); <b>rábanos</b> ( <i>Raphanus</i> sp.); <b>cominos</b> ( <i>Cuminum</i> sp.); <b>anís</b> ( <i>Pimpinella anisum</i> ); <b>peregil</b> ( <i>Petroselinum crispum</i> ); <b>culantro</b> ( <i>Coriandrum sativum</i> ); <b>mastuerzo</b> ( <i>Lepidium sativum?</i> ); <b>rosas</b> ( <i>Rosa</i> spp.); <b>cardos</b> ( <i>Cardueae</i> ); <b>azúcar</b> ( <i>Saccharum officinarum</i> ); <b>algodón</b> ( <i>Gossypium</i> sp.); <b>lechetrezna</b> ( <i>Euphorbia helioscopia</i> ) <sup>a</sup> ; <b>zarzaparrilla</b> ( <i>Smilax</i> sp.); <b>asafrán</b> ( <i>Carthamus tinctorius</i> ); <b>manzanilla</b> ; <b>mostaza</b> ; <b>yerbabuena</b> ; <b>trébol</b> ; <b>malvas</b> ; <b>llantén</b> ; <b>borrajas</b>	Bixio and Berberían (2017); Simioli et al. (2017); Marschoff (2018); Castellón (2021, 2022 and papers therein cited)

(continued)

**Table 1** (continued)

Locality (modern province)	Century	Plant	Source
San Miguel de Tucumán (Tucumán)	Sixteenth–seventeenth	<i>Algarrobos</i> ; <i>cebil</i> ( <i>Anadenanthera</i> spp.); <i>cedros</i> ( <i>Cedrela angustifolia</i> ); <i>lanza amarilla</i> ( <i>Terminalia triflora</i> ); <i>lapacho</i> ( <i>Handroanthus impetiginosus</i> ); <i>nogales</i> ( <i>Juglans australis</i> ); <i>morales</i> ; <i>tipa</i> ( <i>Tipuana tipu</i> ); <i>maíz</i> ; <b>trigo</b> ; <b>cebada</b> ; <b>legumbres de España</b> ; <b>viñas/viñuelas/parrales/uvas</b> ; <b>árboles frutales de Castilla/de España</b> ; <b>naranjos</b> ; <b>duraznos</b> ; <b>algodón</b> ; <b>añil/pastel</b> ( <i>Indigofera suffruticosa</i> )	Noli (1998, 1999, 2001); Borsella and Aguirre (2018); Castellón (2021, 2022 and papers therein cited)
Santiago del Estero and its jurisdiction (Santiago del Estero)	Sixteenth–seventeenth	<i>Algarrobos</i> ; <i>cebil</i> ; <i>cedros</i> ; <i>chañar</i> ; <i>quiebra hachas</i> ( <i>Aspidosperma quebracho-blanco</i> ); <i>cardones</i> ( <i>Cactaceae</i> ); <i>raíces</i> ; <i>porotos/frijoles</i> ; <i>maíz</i> ; <i>papa</i> ; <i>maní</i> ( <i>Arachis hypogaea</i> ); <i>quinua</i> ; <i>porotos/frisoles</i> ; <i>cabuya/cáñamo</i> ( <i>Fourcraea</i> spp.); <i>paja</i> ( <i>Poaceae</i> ); <b>tunas</b> ; <b>árboles frutales de Castilla/de España</b> ; <b>ciruelos</b> ( <i>Prunus domestica</i> ); <b>duraznos</b> ; <b>granadas</b> ; <b>higueras/brevas/higos</b> ; <b>limas</b> ( <i>Citrus aurantiifolia</i> ); <b>manzanas</b> ; <b>membrillos</b> ; <b>naranjas</b> ; <b>perales</b> ; <b>viñas/viñuela/parrales/uvas</b> ; <b>cebada</b> ; <b>trigo</b> ; <b>melones</b> ; <b>sandías</b> ; <b>legumbres de España</b> ; <b>garbanzos</b> ; <b>habas</b> ( <i>Vicia faba</i> ); <b>hortalizas de España</b> ; <b>ajos</b> ; <b>cebollas</b> ; <b>algodón</b> ; <b>añil/pastel</b> ; <b>zarzaparrilla</b> ; <b>miel</b>	Bixio and Berberían (2017); Faberman and Boixadós (2006); Castro Olañeta (2013); Castro Olañeta and Carmigniani (2017); Castellón (2021, 2022 and papers therein cited)
Londres (Catamarca)	Sixteenth–seventeenth	<i>Algarrobos</i> ; <i>chañar</i> ; <i>frijoles</i> ; <i>maíz</i> ; <i>árboles frutales</i> ; <i>viñas</i> ; <i>cebada</i> ; <i>melones</i> ; <i>sandías</i> ; <i>pepinos</i> ; <i>legumbres de España</i> ; <i>garbanzo</i> ; <i>habas</i> ; <i>arvejas</i> ; <i>lentejas</i>	Capparelli et al. (2005); Castellón (2021)
La Rioja (La Rioja)	Sixteenth–seventeenth	<b>Maíz</b> ; <b>trigo</b> ; <b>higueras/brevas/higos</b> ; <b>peras</b> ; <b>duraznos</b> ; <b>viñas/viñuela/parrales/uvas</b>	Boixadós (2008, 2011); Giovannetti (2005)
Córdoba and its jurisdiction (Córdoba)	Sixteenth–seventeenth	<i>Algarrobo</i> ; <i>quinua</i> ; <i>molle de beber</i> ( <i>Lithraea ternifolia</i> ); <i>chañar</i> ; <i>piquillín</i> ( <i>Condalia</i> spp.); <i>maíz</i> ; <i>batata</i> ; <i>maní</i> ; <i>zapallo</i> ; <i>porotos/frisoles</i> ; <b>remolacha</b> ( <i>Beta oleracea</i> ); <b>cebolla</b> ; <b>ajo</b> ; <b>lechuga</b> ( <i>Lactuca</i> spp.); <b>berro</b> ; <b>sandía</b> ; <b>melón</b> ; <b>garbanzo</b> ; <b>granada</b> ; <b>higo</b> ; <b>cebada</b> ; <b>trigo</b> ; <b>manzana</b> ; <b>ciruela</b> ; <b>damasco</b> ; <b>durazno</b> ; <b>pera</b> ; <b>lima</b> ; <b>limón</b> ; <b>naranja</b> ; <b>ají</b> ; <i>papa</i> ; <i>viñas</i> ; <i>árboles/arboleda</i> ; <i>heredades</i> ( <i>olivos?</i> ); <i>huertas</i> ; <i>miel</i>	Bixio and Berberían (2017); Borrastero (2021); Grana and López (2021); Remedi (2006); Tell (2017); Trillo and López (2023)

American *taxa* non local of the study area as well as Old-World *taxa* are in bold. Taxonomic identification is proposed the first time each species is mentioned and according to Castellón (2022)

<sup>a</sup>Some native species of *Euphorbia* are also mentioned as *lechetreznas* in Montenegro and Sánchez Labrador (Stampella and Keller 2021, Folkenand et al. 2023)

## Written Documentary Sources

The complete list of plants usually referred to as “food” by the Spaniards in the sources analysed was compiled and presented in Table 1. Only the most representative mentions, in terms of chronology, jurisdiction of the *Gobernación de Tucumán*, and references to processing, food or drink, are transcribed below.

### Plants Consumed

The sources report the consumption as food of numerous plant species, both American and European. For those first moments of Spaniards entering into the lands of Tucumán, we find accounts such as that of Fernández de Oviedo ([1548] 1936 in Capparelli et al. 2005), an official of the Crown of Spain, whose son participated in Almagro’s entry into the NWA in 1536, who relates that the expedition was supplied with corn in *Xibixuy*, *Chicoana* and the villages of *Juríes*, and also with *algarrobo* (American carob, *Neltuma*—ex *Prosopis* spp.), roots and other herbs. On the other hand, Oviedo Pedro González de Prado, who was part of Diego de Rojas’ expedition in 1542/43 and later remained under the command of Francisco de Mendoza when de Rojas died, with whom he went to “discover” the province of the *Diaguitas*, mentions the native foods based on corn, *algarrobo* and *chañar*:

...and I was one of those who went with Captain Francisco de Mendoza to discover the province of the *Yuguitas* [*Diaguitas*], where we entered the said province, where we found much food of corn and *algarrobo* and *chañar* and many sheep... (Pedro González de Prado, 1556 in Bixio and Berberían 2017, our translation).<sup>2</sup>

Likewise, similar information is given for the region of Santiago del Estero by different witnesses such as Francisco de Caravajal. He was part of the expeditions of Captain General Juan Núñez del Prado in his entry, conquest and foundation of the said city, according to information given by Alonso Abad in 1585 to demonstrate the services of Santiago del Estero in the discovery and conquest of Tucumán. Caravajal mentioned that the *Juríes* only had corn, *algarrobo* and *chañar* to eat:

...the said Indians of this land everyone in general (...) had no other food but corn and *algarrobos* and *chañar*... (Francisco de Caravajal in Alonso Abad, 1585 in Levillier 1918, our translation).<sup>3</sup>

For his part, Gerónimo de Bibar, in his *Crónica y Relación copiosa y verdadera de los reinos de Chile*, while receiving information from those who travelled through Tucumán, mentions in the chapter on Francisco de Villagra’s departure from the

<sup>2</sup>“...y yo fui uno de los que fueron con el capitán Francisco de Mendoza a descubrir la provincia de los *Yuguitas* [*Diaguitas*], adonde entramos en la dicha provincia, adonde hallamos mucha comida de maíz y *algarroba* y *chañar* y muchas ovejas...”

<sup>3</sup>“...los dichos yndios e yndias de esta tierra todos en general (...) no tenían otra comida mas ele solo mayz y *algarrobos* e *chañar*...”

kingdoms of Peru, *algarrobo* trees, *chañares*, corn, beans, peanuts, sweet potatoes and pumpkins in the region of Córdoba:

...There are large *algarrobo* trees (...) There are many *chañares*. It is a fertile land of much corn and beans and peanuts and sweet potatoes and pumpkins and tame sheep... (Gerónimo de Bibar, 1558 in Bixio and Berberían 2017, our translation).<sup>4</sup>

Already from established cities, we find the *Relación de Sotelo de Narvaéz* of 1582/83, who gives an account of Santiago del Estero, San Miguel de Tucumán, Talavera and Córdoba. Sotelo de Narvaéz, whose *Relación* is observed with a descriptive rather than historical purpose, with the aim of providing necessary information for the correct administration of the territory (Bixio and Berberían 2017), mentions some American vegetables such as corn, beans, *algarrobo* and *chañar*, and extends in a wide repertoire of Eurasian vegetables, such as peaches, grapes, figs, quince, wheat, barley, chickpeas, broad beans, among others:

...They were sustained by corn, beans in many ways and roots almost like yucca, although wild and with a lot of *algarrobo* and *chañar* (...) They had no fruit other than different kinds of cactus, prickly pear and *algarroba* and *chañar*; the Spaniards and they now have fruits from Spain, which have been planted; vines, from which many grapes and wine are obtained, peaches, figs, melons, quinces, apples, pomegranates; pear and plum trees have not yet borne fruit; there are limes and oranges (...) Wheat, corn, barley, chickpeas, broad beans, garlic, onions and other vegetables from Spain are harvested in great abundance (...) Abundant honey is harvested... (Sotelo de Narvaéz, 1582/83 in Gentile 2012, our translation).<sup>5</sup>

## Meals and Drinks

With reference to food preparations, the documentation does not offer much information, except for isolated data. Firstly, and for the indigenous sphere, Gerónimo de Bibar mentions for Córdoba that the natives made *algarrobo* “bread,” probably referring to the *patay* made from *algarrobo* flour and cooked in the sun, a very characteristic preparation of northwestern Argentina (Capparelli 2007, 2022):

...There are large *algarrobo* trees and from these *algarrobos* they make bread like the one I have said... (Gerónimo de Bibar, 1558 in Bixio and Berberían 2017, our translation).<sup>6</sup>

<sup>4</sup>“...*Hay grandes algarrobales (...) Hay muchos chañares. Es tierra fértil de mucho maíz y frijoles y maní y camotes y zapallos y ovejas mansas...*”

<sup>5</sup>“...*Susténtanse de maíz, frijoles de muchas maneras y raíces casi como la yuca, aunque silvestres y de mucha algarroba y chañar (...) No tenían frutas más que cardones diferentes, tunas y algarroba y chañar; los españoles y ellos tienen ahora frutas de España, que se han plantado; viñas, de que se cogen muchas uvas y vino, duraznos, higos, melones, membrillos, manzanas, granadas; perales y ciruelos aún no han dado fruta; hay limas y naranjas (...) Cógese trigo, maíz, cebada, garbanzos, habas, ajos, cebollas y otras legumbres y hortalizas de España en grande abundancia (...) Cógese abundancia de miel...*”

<sup>6</sup>“...*Hay grandes algarrobales y de estas algarrobos hacen pan como la que tengo dicho...*”

Father Alonso de Barzana, in his annual letter of 1593 addressed to his Provincial and reporting on the indigenous groups of Tucumán on many aspects, mentions that the *Algarrobo* tree is not only for food but also for making strong drinks, referring to the alcoholic content of the beverage that is currently known as *aloja* (Capparelli 2007, 2022):

...they also sustain themselves with a very large quantity of *algarroba*, which they harvest from the fields every year when it ripens and make large deposits of it; and when it does not rain to harvest corn or the river does not come out of its source to be able to irrigate the land, they sustain themselves with this *algarroba*; which is not only food for them, but they also make drink from it, so strong, that there are never more deaths or wars among them than while the time of the *algarroba* harvest lasts. (...) and it is the time of the *algarroba*, when they have their drunkenness and meetings... (Alonso de Barzana, 1593, our translation).<sup>7</sup>

And related to this drink, Castellón (2022) records the testimony of Lizárraga for Santiago del Estero who gives an account of its elaboration:

...they make *chicha* from the *algarroba*, which is very strong and awful smelly... (Fray Reginaldo de Lizárraga, 1919 [1589], our translation).<sup>8</sup>

On the other hand, for Spanish consumption, Diego López Correa, lieutenant governor and chief justice of Nuestra Señora de Talavera, sent the king and the Royal Council of the Indies a report in response to an interrogation carried out in 1604 to provide information about such domain. It mentions the presence of *diacitrón*, which is the preserved pulp of the *cidra* (see Table 1), together with Paraguayan sweets and sugar, which indicates that they were not only bringing in sweets but also preparing some kind of “canned” fruits. He also mentions the presence of white bread, possibly referring to bread made from wheat, and the consumption of wine, probably referring to its production from the vines already established in the region:

...sweets from the *Paraguai*, *diacitrón*, pumpkin and sugar (...) twenty loaves of a pound are given in this city for a weight of eight *reales*. It is white and good bread (...) takes twenty *arrovas* of wine for his household expenses... (Diego López Correa, 1604 in Simioli et al. 2017, our translation).<sup>9</sup>

According to written sources, the incorporation of American species in the meals of the Spaniards in the frame of Hispanic–indigenous contexts was mainly related to the suffering caused by the lack of their usual sustenance. According to the account of Pedro González de Prado, the expeditionary *huestes*—army in campaign—ate maize stalks as famine food:

<sup>7</sup>“...también se sustentan de grandísima suma de *algarroba*, la cual cogen por los campos todos los años al tiempo que madura y hacen de ella grandes depósitos; y cuando no llueve para coger maíz o el río no sale de madre para poder regar la tierra, pasan sus necesidades con esta *algarroba*; la cual no sólo les es comida, mas también hacen de ella bebida, tan fuerte, que nunca hay más muertes ni guerras entre ellos que mientras dura el tiempo de la *algarroba*. (...) y en viniendo el tiempo de la *algarroba*, cuando son sus borracheras y juntas...”

<sup>8</sup>“...hacen *chicha* de *algarroba*, que es fortísima y hedionda...”

<sup>9</sup>“...confitura del *Paraguai*, *diacitrón*, calabaza y açúcar (...) se dan en esta ciudad veinte panes de a libra por un peso de a ocho reales. Es pan blanco y bueno. (...) coge veinte *arrovas* de vino para el gasto de su casa...”

... and being in the plain, they took the young maize plants, not being able to find any other sustenance; and because all the towns were depopulated they suffered great need, so much so that they ate nothing but cooked maize stalks, which is a very bitter thing... (Pedro González de Prado, 1556 in Bixio and Berberían 2017, our translation).<sup>10</sup>

The same was referenced for roots and wild herbs, although without clear specifications, as recounted by Francisco de Caravajal:

that this witness knows and saw that the soldiers that the said captain Juan Nuñez de Prado and this witness with them conquered the Indian provinces of this governorate until they reached them on foot, on horseback, dead of famine and naked and dressed in animal hides and dog skins from which they made boots and ate roots and herbs and they ate what they sought with their hands for not to serve the Indians... (Francisco de Caravajal in Alonso Abad, 1585 in Levillier 1918, our translation).<sup>11</sup>

For the Colonial contexts there are already references to the intentional incorporation of American ingredients into European preparations. Diego López Correa, mentioned before, refer to the use by the Spaniards of red pepper as a condiment for the preparation of sauces to replace pepper and mustard; it also states that American saffron is used in the same way as Spanish saffron (see Table 1), although it is considered to be of lesser quality compared to the latter:

The red pepper serves as a sauce and instead of pepper and mustard, the saffron is not as good as the one from Castile... (Diego López Correa 1604 in Bixio and Berberían 2017, our translation).<sup>12</sup>

The presence of already cultivated Mediterranean herbs, such as parsley, coriander and mint, must have influenced the flavour of the food in situations where the Spaniards continued to consume American food species (Table 1). Finally, the incorporation of European food species by the natives is referenced by the *Oidor* of the Charcas Audience Antonio Martínez Luxán de Vargas, who in his writings mentions the elaboration of the alcoholic beverage *chicha* with wheat grains:

...most of the time they stop eating the wheat or the corn for reducing it to *chicha* which they make for their drunkenness, so that with only the sowing that they do for their *encomendero* they ensure the meat and the grain for eating and drinking... (Antonio Martínez Luxán de Vargas 1692/93 in Bixio 2009, our translation).<sup>13</sup>

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<sup>10</sup>“...y dando en lo llano, tomaron los maizales en berza, no pudiendo hallar otro mantenimiento alguno; y por estar todos los pueblos despoblados **padecieron grandísima necesidad**, tanto que no comían sino **tallos de maíz cocidos**, que es cosa muy amarga...”

<sup>11</sup>“...que este testigo saue y vió que los soldados que el dicho capitán Juan Nuñez de Prado y este testigo con ellos conquistaron las prouincias de yndios desta governacion hasta los allanar a pie a cavallo y muertos de hambre y desnudos y bestidos de cueros de animales de pellejos de perros hacían botas y comían raíces e yeruas y senbrauan lo que comían por sus manos por no seruir los yndios...”

<sup>12</sup>“...El axi sirbe de salsa y en lugar de pimienta y mostasa, el asafran no es tam buena como el de Castilla...”

<sup>13</sup>“...las mas vezes dejan de comer el trigo ô mays por reduzirlo a chicha que de ello hazen para sus embriaguezes con que con solo la sementera que hazen para su encomendero aseguran en ella la carne y el grano para comer y beuer...”

## *Archaeobotanical Evidence*

The archaeobotanical direct evidences recovered up to the moment from contexts belonging to the sixteenth and seventeenth centuries of the *Gobernación de Tucumán* are presented in Table 2, and Old-World set of these remains shown in Fig. 2.

The materials come from 11 archaeological sites (Table 2). A first group of them are the New and Old-World macro-remains recovered from the Hispanic-indigenous period of sites located in areas of fluctuating conflict or that were not initially incorporated into colonial jurisdictions. This is the case of the ritual and domestic contexts of the Calchaquíes valleys (El Shincal, El Colorado and El Pichao sites) and the activity area of the site Los Viscos, settled in the high-altitude valley of El Bolsón, very close to the former (Fig. 1). These sites were occupied by indigenous people until 1665/1670 (Capparelli et al. 2005, Petrucci 2016, Petrucci et al. 2018, Cano 2011, Arias et al. 2023), when the last focus of rebellions against the Spanish advance were suppressed and the natives dominated (Giudicelli 2018; Rodríguez 2017; Sica 2017). A second group of materials are the micro-remains recovered from Colonial contexts of cities founded before the formal conformation of the *Gobernación de Tucumán* (urban building material from Santiago del Estero and Londres de la Nueva Inglaterra) (Castillón 2022). A third group are the macro- and micro-remains recovered from Colonial contexts of cities founded after the formal conformation of the mentioned territory, and once Spanish rule was well established (domestic urban contexts and building material from Ibatín and Esteco I and II) (Castillón et al. 2024). Finally, a fourth group are the micro-remains recovered from Colonial contexts of sites located in non-urban spaces (agricultural and domestic contexts of Charahuayco 25, Alero Tala Huasi I and Pueblo Guayascaté I) (Angiorama et al. 2018, López 2018, 2020). All of the site contexts presented American and European evidence of different kinds (e.g., ceramic, faunal, architecture evidences, apart from those of plants).

This type of evidence shows a meagre record and less specific richness compared to that reflected in the documentary sources (Table 1). This might be the result of methodological biases; such as the small number of sites with these contexts up to now recorded; non-systematic archaeobotanical sampling and manual recovery of remains in some of the sites; low diversity of contexts represented; absence of anthracological and scarcity of micro-remains studies. Other causes might be due to preservation problems; such as the foundation of cities near river flood terraces. But also, the great disparity shown between both kinds of evidences may be due to an over-dimensioning of the plants effectively cultivated and/or used by the writers of the documentary sources, in order to show more prosperity than that really reached so far.

Undoubtedly, corn and wheat are the most redundant and ubiquitous archaeobotanical remains. Of note is the occurrence of several macro-remains of corn in Colonial domestic contexts from a well-to-do family parcel of land at Ibatín (Castillón et al. 2023) or wheat in the Hispanic-indigenous domestic and ritual

**Table 2** Archaeobotanical remains recovered to date, belonging to Hispano-Indigenous and early colonial contexts, from sites located within the territory of the *Gobernación de Tucumán*

Archaeological site—Colonial city—(modern province)	Chronology (century)	Context	Type of plant evidence and <i>taxa</i>	Source
Chajarahuayco 25 (Jujuy)	Colonial	Agricultural field	aff. <i>Triticum</i> sp. (naked type) and aff. <i>Zea mays</i> phytoliths; <i>Zea mays</i> starch grains	Angiorama et al. (2018)
Parque Aguirre—Santiago del Estero—(Santiago del Estero)	Colonial (sixteenth—seventeenth)	Urban earthen architecture	Pooideae, Chloroideae, Panicoideae, aff. <i>Thritrinax campestris</i> and Cyperaceae phytoliths	Igarreta and Erra (2015); Castillón (2022)
Ibatín—San Miguel de Tucumán—(Tucumán)	Colonial (sixteenth—seventeenth)	Urban earthen architecture	Pooideae, Chloroideae, Panicoideae, aff. <i>Zea mays</i> and aff. <i>Celtis</i> sp. Phytoliths	Castillón (2022); Castillón et al. (2024)
El Pichao (Tucumán)	Regional Develop-ments/ Hispano-Indigenous (sixteenth—seventeenth)	Urban domestic	<i>Triticum aestivum/durum</i> , <i>Vitis vinifera</i> , <i>Oxalis</i> aff. <i>Corniculata</i> ; aff. <i>Carduus</i> sp. and <i>Zea mays</i> carporemain	Castillón (2022); Castillón et al. (2023)
		Domestic	<i>Triticum</i> sp.; <i>Zea mays</i> , <i>Phaseolus vulgaris</i> , <i>Geoffroea decorticans</i> , <i>Cucurbita</i> sp., <i>Prosopis alba/nigra</i> , <i>P. torquata</i> , <i>Celtis ehrenbergiana</i> , <i>Schinus molle</i> , <i>Trichocereus atacamensis</i> , <i>Portulaca</i> sp., Amaranaceae ( <i>Chenopodium</i> sp., y/o <i>Amaranthus</i> sp.), sedge stems	Cano (2011)
Esteco I —Nuestra Señora de Talavera—(Salta)	Colonial (sixteenth)	Urban domestic	<i>Triticum aestivum/durum</i> , <i>Triticum</i> sp. (some immatures, some in the chaff), <i>Vitis vinifera</i> , <i>Hordeum vulgare</i> subsp. <i>vulgare</i> var. <i>nudum</i> (naked), <i>Hordeum vulgare</i> subsp. <i>vulgare</i> var. <i>hexastichum</i> (hulled-6 rows), <i>Secale cereal.</i> indet. <b>Bulbs</b> , <i>Zea mays</i> ; <i>Amaranthus</i> sp. and Poaceae carporemain. Monocotyledonous strings. Pooideae, Chloroideae, Panicoideae and aff. <i>Zea mays</i> phytoliths	Marschoff et al. (2014); Castillón (2022); Castillón et al. (2023)

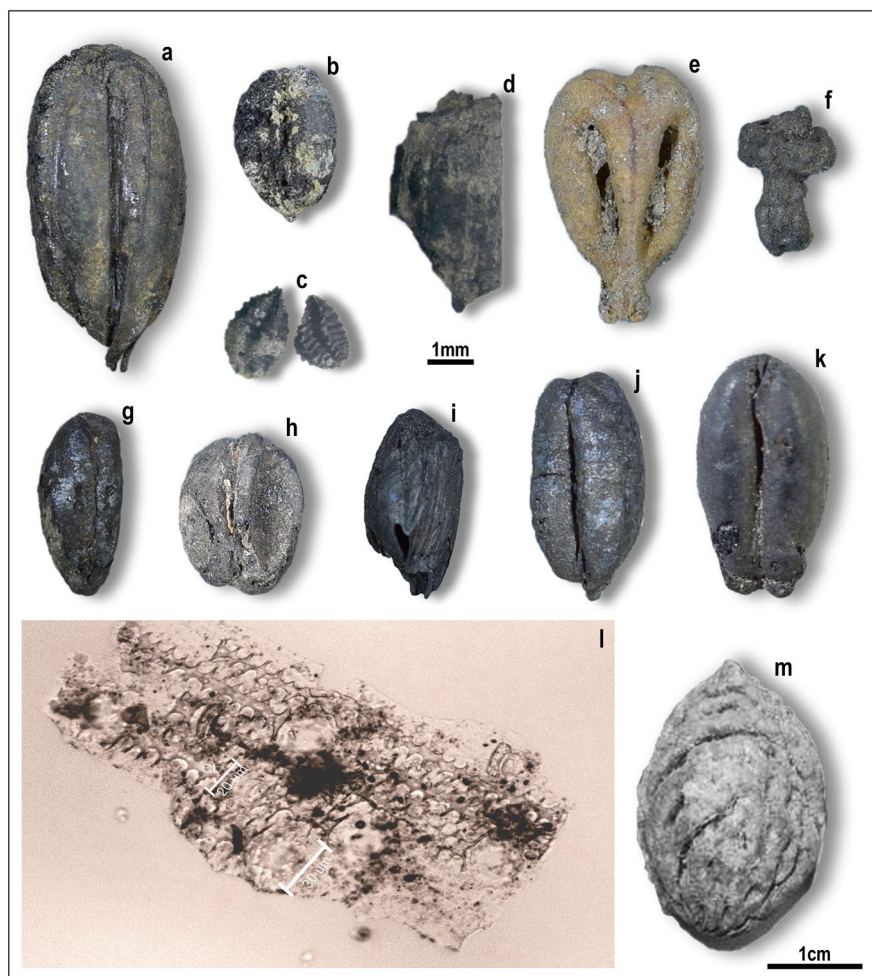
(continued)

Table 2 (continued)

Archaeological site—Colonial city—(modern province)	Chronology (century)	Context	Type of plant evidence and taxa	Source
Esteco II —Nuestra Señora de Talavera—(Salta)	Colonial, (early seventeenth)	Urban earthen architecture	<b>Tritaceae, aff. <i>Triticum</i> sp.</b> , Arundoideae, Bambusoideae, Pooideae, Chloroideae, Panicoideae, <i>Zea mays</i> , Asteraceae and Dicotyledonous phytoliths	Castillón (2022); Castillón et al. (2024)
El Shincal —Londres de la Nueva Inglaterra—(Catamarca)	Colonial (sixteenth)	Urban earthen architecture	Bamusoideae, Pooideae, Chloroideae, Panicoideae, Arecaceae, Cyperaceae, Asteraceae, aff. <i>Neltuma</i> (ex <i>Prosopis</i> ) sp., <i>Zea mays</i> , aff. <i>Phaseolus</i> sp. and Dicotyledonous phytoliths	Castillón (2022)
El Shincal Inka site (Catamarca)	Inka/Hispano-Indigenous (sixteenth—seventeenth)	Ritual ( <i>Ushnu</i> )	<b><i>Triticum aestivum</i> var. <i>aestivum/compactum</i>, <i>T. aestivum sensu strictu</i>, <i>Hordeum vulgare</i> subsp. <i>vulgare</i> var. <i>hexastichum</i>, <i>Hordeum vulgare</i> subsp. <i>vulgare</i> var. <i>distichon</i> (hulled- 2 rows), <i>Prunus persica</i>, <i>Prosopis flexuosa</i>, <i>P. chilensis</i>, <i>Geoffroea decoricans</i>, <i>Sarcophalus mistol</i>, <i>Solanum elaeagnifolium</i>, <i>Prosopanche</i> sp., <i>Zea mays</i>, <i>Phaseolus lunatus</i>, <i>P. vulgaris</i> var. <i>vulgaris</i>, <i>Cucurbita maxima</i> var. <i>maxima</i>; cf. <i>Chenopodium</i> sp. and <i>Gossypium</i> sp. carporemainis.</b> Culinary preparation of <i>aji</i> and <i>poroto</i> ( <i>Capsicum</i> sp. and <i>Phaseolus</i> sp.)	Capparelli et al. (2005); Capparelli (2011, 2015); Lema and Capparelli (2007); Lema et al. (2008)
Los Viscos (Catamarca)	Regional Develop-ments/Hispano-Indigenous (fifteenth—seventeenth)	Activity area for preparing hunting weaponry/hearth	<b><i>Triticum</i> sp. and <i>Hordeum vulgare</i></b>	Arias et al. (2023)
El Colorado (Catamarca)	Hispano-Indigenous	Domestic	<b><i>Hordeum vulgare</i> subsp. <i>vulgare</i>, <i>Triticum</i> spp., <i>Zea mays</i>, <i>Phaseolus vulgaris</i> var. <i>vulgaris</i>, <i>Geoffroea decoricans</i>, <i>Prosopis</i> cf. <i>albainigra/flexuosa/chilensis</i>, <i>P. torquata</i> carporemainis</b>	Petrucci et al. (2018)

Pueblo Guayasbate 1 (Córdoba)	Colonial	Domestic	<i>Zea mays</i> and <i>Trithrinax campestris</i> phytoliths. <i>Prosopis</i> sp. and <i>Zea mays</i> starch grains	López (2020); López and Chevalier (2022)
Alero Tala Huasi 1 (Córdoba)	Colonial	Agricultural field Domestic	<b>Triticaceae</b> and <i>Zea mays</i> phytoliths <i>Zea mays</i> phytoliths	López (2018); Pastor and Medina (2013)

American taxa non local of the study area as well as Old World taxa are in bold. Scientific names are provided according to the original sources. ECP: Early Colonial Period



**Fig. 2** Old World archaeological plant taxa found in the sites of the *Gobernación de Tucumán* mentioned in the present paper. (a) *Hordeum vulgare* subsp. *vulgare* var. *hexasticum* grain. (b) *H. vulgare* subsp. *vulgare* var. *nudum* grain. (c) *Oxalis* aff. *Corniculata* seed. (d) aff. *Carduus* sp. cypsela. (e) *Vitis vinifera* pipe. (f) *Vitis vinifera* pedicel. (g) *Secale cereale* grain. (h) *Triticum aestivum* var. *aestivum/compactum*. (i) *Triticum* grain in their chaff. (j) *Triticum aestivum/durum* grain. (k) *T. aestivum* sensu strictu. (l) Multicellular phytoliths aff. *Triticum* sp. (m) *Prunus persica* stone. c, d, e from Ibatín; a, b, f, g, i, j from Esteco I; l from Esteco II; h, k, m from El Shincal (on the base of Capparelli et al. 2005, Castellón et al. 2023, 2024)

contexts of Los Viscos (Arias et al. 2023), El Pichao (Cano 2011), El Colorado (Petrucci 2016, Petrucci et al. 2018) and El Shincal (Capparelli et al. 2005), respectively.

These *taxa* are followed in importance by other two, as follows. Hulled barley, which appears both in urban domestic Colonial contexts (Esteco I) and in the Hispanic-indigenous spaces (Los Viscos, El Colorado and El Shincal) (Castillón et al. 2023, Arias et al. 2023, Petrucci 2016, Petrucci et al. 2018, Capparelli et al. 2005, respectively). And *algarrobo*, in both, non-urban colonial (Pueblo Guayascate I) and Hispanic-indigenous contexts (El Pichao, El Colorado, El Shincal) (López 2020, Cano 2011, Petrucci 2016, Petrucci et al. 2018, Capparelli and Lema 2011, Capparelli et al. 2005). Other European *taxa* such as grapevine, rye and naked barley appear only in urban colonial contexts (Esteco I) (Castillón et al. 2023). Meanwhile, American *taxa* such as *chañar*, *mistol*, *Phaseolus* beans, squash and red pepper, among others, appear only in Hispanic-indigenous domestic and ritual contexts of the Calchaquíes valleys (El Pichao, El Colorado and El Shincal) (Cano 2011, Petrucci 2016, Petrucci et al. 2018, Capparelli et al. 2005).

The archaeobotanical remains recovered for the period not only tell us about food ingredients but also about meals. For example, in the case of El Shincal, one made from beans and red peppers (Capparelli 2015). Finally, they also refer to agricultural activities. In this regard, it is interesting to note the presence of silicophytoliths of *Triticum* sp. (naked type) with evidences of threshing in agricultural fields of the ECP (Chajarahuyco site) (Angiorama et al. 2018); of “weeds” indicative of cultivation of native species (*Amaranthus* sp. from Esteco I; *Chenopodium* sp. from El Shincal); as well as to other indicators of cereal cultivation, ploughing (*Oxalis* aff. *Corniculata* and aff. *Carduus* sp. at Ibatín), and threshing (silicophytoliths of *Triticum* sp. from Esteco I) (Castillón et al. 2023, 2024).

## Discussion

### *The Gobernación de Tucumán*

The trajectory of the different American and Old-World ingredients during the ECP in this territory has marked the beginning of a process of mixture between two cultures that met and developed different levels of adaptations and resignifications. On the one hand, the plant remains recovered from the archaeological sites allow us to infer a certain continuity in the consumption of common elements in the diet of each cultural group, whether native people or Spanish, for example, corn, beans, squash, *algarrobo* and *chañar* among the natives of the Calchaquíes valleys; and wheat, barley and grapes among the Spaniards in the early cities. On the other hand, the two sets of evidences presented here also allow us to detect transformations in the diet, which took place at the time of the conquest and colonization, and which drove social changes over several decades, although not equally between conquered and conquerors. In this regard, the emergence of a space marked by the dynamism of hybridization (García Canclini 1990) led—in some cases and to a different

extent—to the disappearance of the original, rigid cultural boundaries and thus gave rise to the emergence of new cultural agents, new practices, new cuisines.

The various rebellions in the Calchaqués valleys, which lasted approximately more than a century, play an important role in these changes. The indigenous groups resisted not only the colonial advance because of a dominating system but also as a way of maintaining their autonomy and affirming their territoriality, which did not correspond to the new distribution of land that the Spaniards intended to establish (Giudicelli 2018). In this geographical and temporal context of confrontations and permanent resistance, people of the sites of El Pichao, El Shincal and El Colorado chose to incorporate foreign species into their spaces and redefine them. In the case of El Shincal, the finding of Eurasian vegetables demonstrates their manipulation, without prior processing, exclusively within the *Ushno*—a ceremonial platform—and in a ritual context of the type of a *capacocha*, as part of the ceremonies and offerings carried out there (Capparelli et al. 2005). Archaeobotanical research at the site indicates that these ingredients were not incorporated into the indigenous diet, which was based on the grains and fruits of the Andean area (Capparelli et al. 2005). The use of wheat, barley and peaches as ritual offerings, but without evidence of having been part of domestic consumption, was interpreted as a message within the Calchaquí resistance, considering that this resistance was effective for several decades and, as such, could represent an appropriation of the Spanish by those who resisted the conquest continuously on multiple occasions (Capparelli et al. 2005).

Meanwhile, in El Pichao and El Colorado, wheat and barley appear in domestic contexts in a low frequency with respect to native foods (Cano 2011, Petrucci et al. 2018), so it was interpreted that they could have been incorporated in a minimal part of indigenous consumption (Petrucci 2016, Petrucci et al. 2018). Their ingestion could be related to the fact that gastronomic culture usually goes beyond the ingredients and is crossed by the meanings given to the elaboration of a given meal (Espeitx 2004). This, added to the respective flexibility of each native groups' worldview (Gruzinski 2007), could have resulted in the preparation of wheat and barley in the customary way for Andean grains, and preserving the final meaning of the food to be eaten, all within a framework of cultural reproduction and autonomy. Here a step towards a mixture of ingredients and preparations is evident, before the Spaniards finished consolidating their settlements in the region.

On the other hand, the consumption of green maize stalks by the Spaniards to feed them in the face of the hunger mentioned in the documents during this first stage of exploration, can be thought in two different ways. One possibility is to think it as a back to the use that possibly explains the origins of domestication of maize, because of its sugary stems that were chewed at the beginning and used to make fermented beverages later (Smalley and Blake 2003). These uses were apparently extended in America—at least from Mexico to Peru—in the early sixteenth century, as it is mentioned in historical and ethnographic sources (see Smalley and Blake 2003). Another possibility is to consider their consumption as a resignification of this kind of food. It is possible that they may have been assimilated to the consumption of thistle stalks, a common practice in the diet of the Spanish in Europe

(Hernandez Bermejo et al. 2019). There may also have been a kind of incorporation by resemblance, where the same morphology is associated with similar functions (Saldarriaga 2010), which was exacerbated by the prevailing famine among the Hispanics (Muller and Almedon 2008).

In the case of the indigenous people who inhabited the colonial cities or other settlements located within their jurisdictions, where the Spaniards owned *Encomiendas* and *Mercedes*, livestock and textile production granted by the authorities of the *cabildo*, the situation may have been different. In Luxan de Vargas' visit to the city of Córdoba in 1692/93 (Bixio 2009), the possible use of wheat in a similar way to maize for the production of *chicha* is evident. The value of such an alcoholic beverage among the native commensal activities that contributed to sociocultural reproduction is noteworthy here. If we consider, as mentioned above, the value not of the isolated ingredient but of the product, we can see that fermenting wheat to obtain the drink that is then shared could have constituted a mechanism of adaptation to the new colonial situation that does not alter the ultimate meaning given by the commensality actors to the fact of joining together and encouraging their social exchanges (Grana and López 2021). This incorporation of previously unknown ingredients, without the intervention of the colonial power, could have been the driving force of a cultural reorganization, breaking the previously established borders. It could have begun in the absence of the availability of the usual resources, unlike what was observed in the Hispanic–indigenous contexts of El Pichao, El Shincal or El Colorado. There are written testimonies that confirm that the *encomendero* paid them with wheat, and it is also said that the natives did not have enough time or land to cultivate their food (González Navarro 2008). It is for this reason that wheat could have been resignified in the absence of corn, or insufficient quantities of it, to make that beverage. Although wheat (and to a lesser extent hulled barley) is the most frequent Eurasian species in the urban contexts of Ibatín and Esteco, there are no data that allow us to infer its consumption by indigenous people within these cities, but rather by Europeans. On the other hand, it is worth mentioning that Old-World *taxa* such as vine, rye and naked barley appear archaeologically only in urban Colonial contexts and not in Hispanic–indigenous ones, so it is possible that their consumption was restricted only to Europeans, that they were not used as payment by the Spanish and/or that they were not resignified early by the natives.

It is unclear whether the Spaniards adopted or not the consumption of American products, with the exception of *diacitron*, from trade, to which the written documentation refers. It is also interesting to note that, although the fruits of the forest—*algarrobo*, *chañar*, *mistol*, from which the natives made food and drink—are repeatedly mentioned in written documents, they are not archaeologically present in the Colonial cities of San Miguel de Tucumán and Nuestra Señora de Talavera, not even in terms of parts that are discarded from everyday production. This casts doubt both on the presence of indigenous people in these cities and on an early resignification of these fruits by the Spaniards in colonial urban contexts. There are other vegetables which, according to written sources, were incorporated into meals by Spaniards without effective resistance. This is the case of those used as American

condiments, which, although they had different positive (red pepper) or negative (saffron) evaluations, were not explicitly rejected. This would have generated new mixtures of European culinary preparations seasoned with American spices.

In the case of maize, the data collected from documentary sources show that it was part of the tribute that the indigenous people had to pay to the Crown (Bixio 2009). It is possible that the *encomendero* used it as fodder for his cattle (Grana and López 2021) or that it was part of the trading circuit (Piana 1992). In this regard, Paz Sánchez (2013) reports that, in Spain, the incorporation of maize into the diet went from a first stage of rejection to a second where it was cultivated as fodder for farm animals and cattle, as well as food for the poorer strata of society. Nevertheless, the archaeological remains of maize recovered from domestic contexts in San Miguel de Tucumán seem to indicate that there was effectively culinary processing and early resignification within the European families (Castillón et al. 2023).

Interestingly, in line with the written sources, the archaeobotanical evidence from the study region also shows other practices and materiality apart from the food ones, generated by the hybridization of both cultures. This is the case of cultivation practices of both native species and European cereals from Colonial contexts north to south of the Gobernación de Tucumán, as well as the implementation of ploughing and threshing, which will lead to major socioeconomic and landscape changes in the future.

### ***Relationship with Cuyo, Pampa and Patagonia***

The *Gobernación de Tucumán* had significant interactions with its neighbouring areas, including the *Corregimiento de Cuyo*—dependent on the Captaincy General of Chile—Pampa, Patagonia, and Buenos Aires.

Archaeobotanical and historical evidence suggests that the Huarpes, settlers of northern Mendoza, incorporated Eurasian crops early on through contacts with Spaniards settled in Santiago de Chile. This incorporation began before Spanish exploration of Cuyo (1551) and the subsequent conquest of the region in 1561 with the foundation of Mendoza city (Chiavazza 2010; Chiavazza and Mafferra 2007; Mafferra et al. 2015). The introduction of Eurasian species in El Shincal might have been due through early contacts between the Calchaquí and Huarpe groups (Capparelli et al. 2005).

Similarly, indigenous groups in Pampa and Patagonia, which based their economy on hunting and gathering, also obtained cultivated products through trade from the sixteenth century onwards, leading to the circulation of Eurasian and American plants. What was first exchange with neighbouring groups, later became trade with Buenos Aires (see further implications in Colobig et al. [Chap. 27]) and with Chile's Araucanía region.

As Palermo (2000) summarizes, the Mapuches in Araucanía had a rich agricultural tradition growing corn, quinoa, an oilseed, beans, potatoes, among others. They adopted early wheat and barley from the Spanish, along with other crops, as it

is shown by the hidden silos of these grains that were found by Villagra's soldiers in his expedition of 1557. The first written information on plants there, is found by the year 1621 for the Cután valley, where a group of Huliché faction had a lot of wheat, barley, broad beans, lentils and peas (Palermo 2000). According to the same researcher, chronicles from 1629 explain that barley—along with potatoes—was the main food of the poor tribes south of Cautín, and that in that century, it was already the main raw material for roasted flour, almost the only food for native warriors during their campaigns. Mapuches also utilized abandoned vineyards and fruit trees left by fleeing Spaniards (Palermo 2000).

To the east of the Andean mountains, Palermo (2000) comments that by the seventeenth century, the Pehuenches of western northern Patagonia cultivated wheat and barley, although this practice was replaced later by trade with the Chilean Araucanía. By the eighteenth century, wheat, barley, beans, peas, and maize were grown by the inhabitants of the Lake Huechulafquen area (Palermo 2000). Around 1806, De la Cruz saw that the Pehuenches of the Neuquén Mountain range were not farmers but transhumant shepherds who obtain grains from interchange in Chile; and that the areas they travelled through were recognizable because of the spontaneous growing of wheat, barley, red peppers and tomatoes (Palermo 2000). The same De la Cruz saw a little further east, small farms with pumpkins and two exotic plants, melons and watermelons, among the Ranqueles of the Curalauquen area (Palermo 2000).

Wheat grains (*Triticum aestivum/durum*) found in sixteenth century hunter-gatherer contexts from the archaeological site of Cueva de Luna (Llano and Durán 2014) evidence the exchanges prior to European contact mentioned in the sources for northern Patagonia. While the same wheat together with remains of *Juglans* aff. *Nigra* walnut recovered from Pehuenche contexts (eighteenth–nineteenth centuries) of the same site confirm the post-contact access and possibly consumption of these plants without an abrupt change with respect to the consumption of local products (Llano and Durán 2014). Five other plant species appear in the archaeobotanical record of Pampa and northern Patagonia, which are not native to these regions and could have been obtained through the extensive exchange these groups practised, mentioned in the sources: *Zea mays*, cf. *Lagenaria siceraria*, *Cucurbita maxima*, *Prunus persica* and *Sarcomphalus mistol* (see compilation in Ciampagna and Capparelli 2012; Ciampagna 2015). The first four are cultivated (all American or introduced to America long ago—for example, in the case of *Lagenaria*, see Capparelli 2022—except the peach) and the last one is a spontaneous native species that grows in the Argentinian Chaco.

Throughout the seventeenth and eighteenth centuries, various native groups of Pampa and Patagonia engaged in trade with white settlements, obtaining products such as yerba mate, tobacco, sugar, and Cuyo *aguardiente*—schnapps—(Palermo 2000). For the eighteenth century, Nacuzzi (2005, 2014) describes the following merchandise circuit: from Buenos Aires, flour, wheat, fat and rice were sent to the forts. From Fort del Carmen (now Carmen de Patagones city), the natives obtained yerba mate, tobacco, flour and beans, while the Chulilaquini and Negro caciques sold cattle, horses and ponchos. At Fort San Julián (now Puerto San Julián), cacique

Julián provided guanaco meat in exchange for “biscuits, tobacco and other trinket.” The *manzaneros* obtained from Valdivia (founded in 1552) braces, knives, spears and indigo to dye ponchos and *brujerías*—witchcraft. They also traded with other groups and obtained products from Fort San Carmen.

In southern Patagonia, Palermo (2000) reports that among the Tehuelches, in 1794, the cacique Vicente de Puerto Deseado treasured a bag of corn together with a barrel of *aguardiente* he had received in payment for services to the people of Captain Gutiérrez de la Concha. In 1859, Schmidt (1964) mentions that the southern Tehuelches were very fond of rice, beans and flour, and that they used to make a kind of bread baked on the ashes, a fact confirmed in 1866 by the Welshman Matthews, who speaks of flat cakes (probably made from *Neltuma* sp., see Capparelli 2022) among this ethnic group.

Overall, the foundation of cities in the *Gobernación de Tucumán* and Mendoza facilitated the circulation of goods from Chile and the Atlantic via Buenos Aires and Santa Fe (Assadourian 1982; Capparelli et al. 2005; Chiavazza and Mafferra 2007 and works cited therein). For most of the sixteenth century, products were mainly directed to Santiago del Estero, via Córdoba, and from there they continued on their way to Alto Perú. But with the foundation of Córdoba—and immediately that of San Luis (1590)—products to and from Mendoza began to circulate more directly to Buenos Aires (Capparelli et al. 2005). Likewise, from Buenos Aires began the distribution of products mainly from the littoral to the Pampa and Patagonia, with the various Spanish forts in these regions being important points of exchange. By the end of the sixteenth century, a market had developed based on the interaction of different ethnic groups from the Pampa, Patagonia and Araucanía with Chile and Buenos Aires (Assadourian 1982).

## Conclusions

Throughout this work, by combining the analysis of written documentary sources and the archaeobotanical record, we have been able to observe how, in the conjunctural times of conquest and colonization, the responses of societies can be recorded through the study of food.

In the case of the *Gobernación de Tucumán*, it can be observed that the indigenous societies redefined some European species in different ways, while continuing to consume American species, that is, without replacing the traditional, the local by the new. Both documentary and archaeobotanical evidence shows that, of the American species, at least maize, beans, squash, *chañar* and *algarrobo* continued to be part of the indigenous diet after the conquest, some of them even as a source of sugar. However, wheat and barley—and perhaps peach to a lesser extent—were gradually integrated into different eating habits during colonization, achieving a continuous intercultural exchange and dialogue leading to a reconfiguration in culinary practices, and cultural practices in general, giving an account of a space of coexistence of transhistorical temporalities that broke the pre-existing rigid frontiers.

The Spanish, for their part, according to documentary sources, would have depended on native foods in their first two incursions into the NWA, while later, they would have cultivated vines, fruit trees from Spain and European cereals, among others. Of this, only archaeological evidence of vines and Eurasian cereals, as well as ploughing and threshing cultivation practices, is recorded in the early cities. Even when written sources said that corn was hardly incorporated in the Spanish diet, it is likely that these people included maize in their cuisine, as reflected in the archaeobotanical record of the early cities analysed here. However, the same does not seem to be true for preparations derived from the fruits of the native trees, such as *algarrobo*, *mistol* and *chañar*.

Judging by written sources, the Spaniards were willing to incorporate American spices such as red pepper and American saffron to replace the scarcity of pepper and saffron from the Old World. The former products, together with Mediterranean-cultivated aromatic plants, surely changed the taste of the culinary preparations to which they were accustomed, and enhanced the flavour of their food in America.

Finally, towards the end of the sixteenth century, the market from Chile, the Atlantic and *Alto Peru* allowed the circulation of other products of Hispanic daily life, or products from other parts of America, which contribute to diversify the diet of the different groups living not just on the *Gobernación de Tucumán* but also in neighbouring areas.

There is still a lot of work to be done, both in terms of studying new historical documents, as well as recognizing a greater number of archaeological sites from the ECP and systematizing archaeobotanical sampling at these sites. With this contribution, we would like to give a start to these investigations, which will provide a better understanding of the historical development of food in our current phyto-cultural systems.

**Acknowledgements** To Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) PIP 3138; UNLP (N866); ANPCyT 2020-2787, financial support to Aylén Capparelli.

**Competing Interests** The authors have no conflicts of interest to declare that are relevant to the content of this chapter.

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