



# The Historical Evolution and Present Condition of Camel Milk Practices in Northern China

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**Abstract:** This article examines the long-term trajectory of camel milk consumption in northern China and the ways in which that tradition has been preserved and transformed in the present. Methodologically, the study combines textual analysis of premodern historical records with a review of modern ethnographic, food-science, and cultural studies. The evidence suggests a crucial distinction between the history of camel husbandry and the history of camel milk use. Although large-scale camel raising can be traced to at least the Han period, explicit documentary evidence for camel milk consumption appears clearly only from the Yuan dynasty onward. By the Yuan, Ming, and Qing periods, camel milk circulated not only in pastoral settings but also in courtly, medicinal, and commercial contexts. The contemporary case shows that milking, fermentation, dairy processing, and social uses remain embedded in pastoral life, while camel milk has also been reframed through heritage discourse, nutritional science, and regional industrial development. The article argues that camel milk should be understood not merely as a food product, but as a historical foodway shaped by pastoral ecology, social exchange, ritual meaning, and changing economic institutions.

**Keywords:** camel milk, pastoral foodways, historical texts, Bactrian camel, cultural heritage

## I. INTRODUCTION

Camel milk occupies a distinctive position in the food history of northern China. In the modern period, it has attracted renewed attention in nutrition research, public-health discourse, and regional economic planning. Yet the historical depth of this practice has rarely been treated as a subject in its own right. Existing scholarship has tended to focus either on camel domestication and transport or on the compositional and therapeutic properties of camel milk <sup>[1]–[3]</sup>, <sup>[15]–[22]</sup>. As a result, an important question remains underexplored: when does camel milk become visible in the documentary record as an actual item of consumption, and how has that practice persisted into the present?

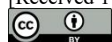
This article addresses that question by tracing the historical origins and contemporary condition of camel milk use in northern China. It argues for a distinction that is methodologically important for historical analysis. Evidence for camel husbandry does not automatically constitute evidence for camel milk consumption. Historical records from early dynasties show that camels had already become significant animals in northern military and pastoral systems <sup>[1]–[3]</sup>, but direct references to drinking or processing camel milk are much later. Explicit textual evidence becomes clear in Yuan sources and remains visible through the Ming and Qing periods <sup>[4]–[14]</sup>.

The second aim of the article is to connect historical textual evidence with a contemporary pastoral case. Modern studies on Alxa document a living repertoire of milking practices, fermented products, dairy processing techniques, medicinal understandings, and camel-centered ritual customs <sup>[15]–[27]</sup>. Examining these materials together makes it possible to move beyond a simple chronology of consumption. Camel milk emerges instead as a composite historical phenomenon: a subsistence resource, a courtly and medicinal substance, a frontier food, a ritual medium, and, more recently, a market commodity.

The article is organized as follows. Section II explains the source base and analytical approach. Section III distinguishes the history of camel raising from the history of camel milk consumption. Section IV reconstructs the documentary record from the Yuan to the Qing dynasties. Section V examines the contemporary preservation and transformation of camel milk practices in Alxa. Section VI discusses the broader implications of these findings for food history, pastoral studies, and heritage research. Section VII concludes.

## II. SOURCES AND ANALYTICAL APPROACH

This study is based on two bodies of material. The first is a corpus of premodern textual sources that mention camels, camel milk, or camel-related food practices. These include dynastic histories, literary anthologies, medical dietetic works, poetry collections, and miscellanies compiled from the Yuan through the Qing periods <sup>[4]–[14]</sup>, together with earlier historical references that document camel husbandry in northern China <sup>[1]–[3]</sup>. The second body of material consists of



modern Chinese-language scholarship on camel milk production, compositional analysis, therapeutic claims, and camel-related cultural practices, especially in Alxa <sup>[15]–[27]</sup>.

The method is historical-textual and interpretive rather than quantitative. Premodern materials are used to identify when camel milk enters the written record, in what kinds of social settings it appears, and how it is described. Modern materials are used to reconstruct current production techniques, food uses, medicinal understandings, and ritual practices, while also showing how pastoral knowledge has increasingly been reframed through scientific and industrial language.

This source base has both strengths and limitations. Its strength lies in the ability to connect long-term historical references with present-day cultural practice. Its limitation is that the evidence is uneven. Premodern texts privilege courts, literati, officials, and exceptional events; they do not provide a full social history of everyday consumption. Similarly, modern studies often combine ethnographic observation with strong nutritional or developmental claims that are not always supported by comparable clinical evidence. The analysis therefore proceeds cautiously, distinguishing clearly between documented practice, local belief, and modern scientific interpretation.

### **III. CAMEL HUSBANDRY BEFORE DIRECT EVIDENCE OF CAMEL MILK USE**

The historical record indicates that camels were already well established in northern China long before there is direct evidence that people were drinking camel milk. A Han-period text records military collaboration involving the Wusun and the Xiongnu, revealing the importance of camel-raising peoples in the northern frontier <sup>[1]</sup>. Later accounts from the Former Qin period note the seizure of large numbers of animals, including camels, after military defeat <sup>[2]</sup>. Tang sources likewise list camels among the principal categories of livestock in common use <sup>[3]</sup>. Taken together, these materials demonstrate that camel husbandry had become economically and militarily significant by an early date.

Yet none of these sources explicitly states that camel milk was consumed. This distinction matters. In historical reconstruction, it is methodologically unsound to infer a documented food practice merely from the presence of the animal that produces it. Camel milk may well have been consumed earlier, but the absence of direct textual evidence prevents that claim from being stated with certainty. The earliest part of the record therefore establishes the environmental and pastoral preconditions for camel milk use, not the practice itself.

This distinction also clarifies the contribution of the present article. Rather than projecting later foodways backward into earlier periods, the analysis tracks the point at which camel milk becomes historically legible as a named and socially meaningful substance. Once that threshold is crossed in Yuan sources, camel milk appears in multiple registers: royal consumption, medicine, alcohol production, everyday diet, frontier sustenance, and, in modern times, heritage and commerce.

## **IV. DOCUMENTED CAMEL MILK CONSUMPTION FROM THE YUAN TO THE QING**

### **A. Yuan dynasty: courtly privilege, medicine, and commerce**

The documentary record becomes explicit in the Yuan dynasty. The History of Yuan reports that the emperor referred favorably to drinking camel milk in a context linked to frontier provisioning <sup>[4]</sup>. In dietary and medical literature, camel milk appears as a substance described as warm and sweet, capable of benefiting qi, strengthening the body, and relieving hunger <sup>[5]</sup>. Such descriptions indicate that camel milk was not merely consumed as ordinary sustenance; it was also valued within a dietetic logic that connected food and bodily regulation.

Yuan materials further show that camel milk had courtly prestige. One source places it within the so-called “Eight Treasures of Mongolia,” a category associated with elite and valued foods <sup>[6]</sup>. Another records the administration of medicine prepared from camel milk for a convalescing ruler <sup>[7]</sup>. These references suggest that camel milk circulated in imperial and aristocratic settings as both nourishment and therapeutic aid.

Camel milk also appears in a commercial and artisanal register. A poetic description of market life notes the collection of camel milk for wine-making <sup>[8]</sup>. This is an important clue. The transformation of camel milk into alcohol implies not only availability, but also technical knowledge and social demand sufficient to support processing beyond immediate subsistence. In the Yuan context, then, camel milk was already embedded in a spectrum of practices ranging from pastoral supply to elite consumption and commercial preparation.

### **B. Ming dynasty: regional taste and the persistence of northern dairy culture**

By the Ming dynasty, camel milk remained present but appears more clearly as a marker of regional taste. One text contrasts the food preferences of people in the south with those in the north, observing that what some regarded as delicacy others regarded as unpleasant in smell <sup>[9]</sup>. Camel milk, together with cow’s milk, is placed in the northern set of preferences. This comparison is valuable because it moves beyond court-centered documentation and reveals a cultural geography of taste.

The Ming evidence suggests continuity rather than rupture. Political dynastic change did not erase the dairy-oriented food habits of northern pastoral populations. Camel milk persisted as part of a broader dietary system in which milk, meat, and other pastoral foods remained central to everyday life. The source also implies that the boundaries of taste were socially recognized: camel milk was neither universally consumed nor universally esteemed, but rather associated with specific ecological and cultural worlds.

### C. Qing dynasty: court provision, frontier life, and subsistence value

The Qing material expands the social range of documentation. Administrative and inventory evidence indicates that camel milk formed part of court provisioning on a substantial scale <sup>[10]</sup>. Literary sources, however, show that its presence was not confined to elite settings. Poetic descriptions refer to morning consumption of camel milk and evening drinking of mare's milk in everyday life <sup>[11]</sup>, while other poems invest camel milk with emotional and humanistic meaning <sup>[12]</sup>.

Qing materials also underscore the role of camel milk in frontier subsistence. In periods of food shortage, it functioned as an important supplement in pastoral and military environments, a theme reflected in the writings of Yao Xie and Yao Yuanzhi <sup>[13]</sup>, <sup>[14]</sup>. The cumulative effect of the Qing evidence is significant. Camel milk was no longer visible only as an elite delicacy or medicinal item; it had become legible across courtly, common, and garrison contexts.

Taken together, the Yuan, Ming, and Qing sources support three conclusions. First, direct documentary evidence for camel milk consumption is clear from the Yuan dynasty onward. Second, camel milk circulated across multiple social settings rather than belonging to a single class or institution. Third, the meanings attached to it were plural: nourishment, medicine, prestige good, processed beverage, and survival food. These functions help explain why camel milk remained culturally resilient in northern pastoral zones even as larger political and economic regimes changed.

**TABLE I Historical Trajectory of Camel Milk in the Documentary Record**

Period	Type of evidence	Main social settings	Historical significance
Han–Tang	Military and livestock records <sup>[1]–[3]</sup>	Frontier husbandry and transport	Shows the long history of camel raising, but not direct proof of milk consumption
Yuan	Dynastic history, dietetics, court writing, poetry <sup>[4]–[8]</sup>	Court, medicine, market, frontier supply	Earliest explicit documentary horizon for camel milk use
Ming	Literary reflection on regional preferences <sup>[9]</sup>	Northern everyday diet and regional taste	Reveals cultural persistence of pastoral dairy consumption
Qing	Inventories, poetry, frontier writing <sup>[10]–[14]</sup>	Court, common life, garrison, scarcity periods	Shows broad social diffusion and subsistence importance

**Note:** The table summarizes the historical argument of the article: camel husbandry predates documented camel milk consumption, while the Yuan–Qing record reveals the widening social uses of camel milk.

## V. CONTEMPORARY PRESERVATION AND TRANSFORMATION: THE CASE OF ALXA

### A. Everyday processing and pastoral knowledge

Among the regions where camel raising remains important today, Alxa occupies a particularly prominent place in the literature. Modern studies describe a pastoral setting in which fresh camel milk is still widely consumed, fermented products remain common, and a specialized repertoire of processing techniques has been preserved <sup>[15]</sup>, <sup>[16]</sup>. These practices include the production of milk skin, ghee, yogurt-like fermented products, milk wine, and both raw and cooked forms of milk tofu <sup>[16]</sup>.

What is especially notable is that these are not merely recipes in a culinary sense. They encode technical judgments about boiling, cooling, fermentation time, stirring intensity, fat separation, and seasonal adaptation. The procedures recorded in local studies show a highly developed knowledge system built through long-term experience with Bactrian camel milk <sup>[16]</sup>. In that sense, contemporary camel milk culture is best understood as a living pastoral technology: it is practical, embodied, and reproduced through household and community transmission.

Modern descriptions also indicate that milking itself remains socially structured. The handling of the she-camel and calf, the timing of milking, the storage of fresh milk, and the processing of surplus milk all form part of a wider domestic economy organized around camel care and household subsistence <sup>[25]–[27]</sup>. These routines show continuity with the historical record in one important respect: camel milk remains meaningful not only as nutrition, but also as a practice embedded in relations among humans, animals, labor, and seasonality.

### B. Health claims, nutritional research, and the modern scientific reframing of camel milk

In Alxa and other camel-raising areas, local understandings commonly attribute substantial health benefits to camel milk. Herders describe it as strengthening the body and assisting with a wide range of ailments, including digestive, respiratory, metabolic, and inflammatory conditions <sup>[17]</sup>. These beliefs are important historically because they help explain the prestige and continued consumption of camel milk in pastoral life.

Modern food-science research has sought to reinterpret these beliefs in biochemical terms. Studies report that camel milk contains relatively high levels of protein, fat, ash, and total solids, while its lactose profile differs from that of several other milks <sup>[18]</sup>, <sup>[19]</sup>. Other publications discuss potential benefits related to immunity, anti-inflammatory effects, antioxidant activity, digestive health, metabolic regulation, and adjunctive therapeutic use <sup>[20]–[22]</sup>.

At the same time, these claims require careful evaluation. Much of the existing literature is based on compositional analysis, animal experimentation, or broad summary discussion rather than large-scale controlled clinical trials <sup>[18]–[22]</sup>.

For that reason, it is more accurate to say that modern research has strengthened the scientific visibility of camel milk and helped support its market reputation, rather than conclusively validating every therapeutic claim associated with it. The contemporary popularity of camel milk is therefore produced through the interaction of inherited pastoral knowledge, nutritional science, and health-oriented commercialization.

### **C. Ritual, heritage, and cultural identity**

Camel milk culture in Alxa extends beyond food production. It is also embedded in ritual activities, hospitality practices, and forms of symbolic respect directed toward camels. Studies of local customs describe the use of camel milk in welcoming guests, marking festive occasions, and making offerings to heaven, earth, ancestors, or sacred camel figures [25]–[27]. In such contexts, camel milk functions as a ceremonial medium through which pastoral households express blessing, respect, and social dignity.

The same sources show that camel-centered ritual life includes sacrificial and devotional practices associated with herd protection, fertility, prosperity, and animal well-being [25]–[27]. During ceremonies, camel milk may be sprinkled as an offering, presented with white liquor and dairy foods, or incorporated into the symbolic honoring of selected camels. These acts demonstrate that camel milk is not reducible to a commodity or nutritional fluid; it carries a ritual value generated within long-standing relations between herders and camels.

In recent decades, these customs have increasingly been framed within cultural heritage discourse. The preservation of camel-raising customs and camel-milk processing techniques has become part of a broader effort to document and valorize regional traditions [16], [25]–[27]. This heritage framing has two consequences. On the one hand, it helps record fragile knowledge at a time when younger generations may be less involved in camel pastoralism. On the other hand, it can transform living practices into cultural display, especially when heritage, tourism, and market development become closely intertwined.

## **VI. DISCUSSION**

The findings of this study contribute to three broader discussions. The first concerns food history. Camel milk should not be treated simply as a niche dairy product with unusual nutritional qualities. The historical record shows that it occupied multiple social roles across time: courtly food, medicinal substance, market product, pastoral staple, and scarcity food. This plurality helps explain its resilience. Foods that survive over long periods often do so not because they have a single fixed function, but because they can move across institutions and meanings.

The second contribution concerns pastoral studies. The modern Alxa case demonstrates that camel milk culture is sustained by a dense network of practices: animal handling, milking routines, fermentation knowledge, domestic processing, ritual action, and reciprocal relations between humans and herds. In this sense, camel milk is part of a pastoral knowledge system rather than an isolated commodity. Once this is recognized, it becomes clear that industrial development can preserve some aspects of camel milk culture while simultaneously simplifying others.

The third contribution concerns the relationship between local knowledge and scientific discourse. Modern nutritional and biomedical studies have undoubtedly increased the visibility of camel milk [18]–[22]. However, the scientific reframing of camel milk does not replace older cultural understandings; it coexists with them and often amplifies them in new market-friendly forms. This process is double-edged. Scientific attention may support product quality, standardization, and public recognition, but it may also encourage exaggerated therapeutic claims or reduce a complex pastoral foodway to a functional health product.

A further implication concerns historical method. The article has emphasized that the chronology of camel husbandry and the chronology of camel milk consumption cannot be collapsed into one another. This point may appear modest, but it is analytically important. It prevents the projection of present-day assumptions into earlier periods and establishes a firmer basis for discussing the emergence of food practices in the documentary record.

The study also has limitations. The surviving textual evidence is selective, and the modern materials are drawn mainly from regional scholarship rather than long-term fieldwork or comparative statistical investigation. Future research could extend this work by comparing different camel-raising regions, examining trade and distribution channels, or conducting ethnographic research on generational change in camel milk knowledge and consumption.

## **VII. CONCLUSION**

This article has examined the historical origins and contemporary transformation of camel milk consumption in northern China. The evidence supports a clear conclusion: while camel husbandry has a much earlier history, direct documentary evidence for camel milk consumption becomes explicit only from the Yuan dynasty onward. From that point, camel milk appears in diverse settings, including courts, frontier regions, everyday diet, medicinal practice, and market exchange.

The contemporary case further shows that camel milk remains a living component of pastoral life, particularly through household processing techniques, health beliefs, ritual uses, and the symbolic importance of camels in community culture. At the same time, these traditions are being reshaped by heritage policies, scientific research, and commercial development.

Seen in this long-term perspective, camel milk is best understood as more than a nutritional substance. It is a historical foodway whose meaning has been produced through ecology, mobility, taste, medicine, ritual, and political economy. Recognizing that complexity makes it possible to study camel milk not only as a product of the present, but also as an enduring cultural form with a traceable historical depth.

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