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Beyond nutrients: household practices, traditional uses, and cultural applications of *Corchorus olitorius* in east and west Africa

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Corchorus olitorius, recognized for its culinary and medicinal virtues, is widely integrated into diets across diverse regions of the world. While its nutritional composition is documented, less attention has been given to household practices, traditional uses, and cultural meanings in African contexts. Understanding these dimensions is essential for positioning this indigenous leafy vegetable within sustainable food systems. This scoping review with thematic synthesis was conducted using Web of Science, Scopus, PubMed, and Google Scholar. The search identified 482 records, from which 21 studies were retained for thematic analysis using ATLAS.ti 25. The synthesis identified four main themes: household preparation and preservation practices, medicinal uses, cultural and symbolic meanings, and barriers/enablers to consumption. Across regions, *Corchorus olitorius* was commonly prepared as mucilaginous staple-accompanying dishes, while regional differences were observed in processing methods. West African studies more frequently reported the use of potash, baking soda, drying, and powdering, whereas East African studies highlighted fermentation and mixed-vegetable recipes. Medicinal uses are mainly related to fever, digestive issues, anemia, maternal health, and chronic diseases, although these uses were generally reported as ethnobotanical knowledge rather than clinically validated effects. Acceptance was shaped by cultural meanings, including taboos, prescriptions, and ritual uses. Traditional knowledge related to *C. olitorius* encompasses food, medicine, and cultural practices but remains insufficiently documented in many contexts. Integrating household and cultural dimensions with laboratory-based research can support more culturally relevant strategies for promoting *C. olitorius* within resilient and sustainable food systems.

KEYWORDS
***Corchorus olitorius*, food culture, food systems, indigenous leafy vegetables, traditional uses**

1 Introduction

Food and nutrition constitute essential pillars of a healthy and fulfilling life. Good nutritional status improves health-related quality of life by promoting health, preventing dietary deficiency diseases, and averting secondary malnutrition caused by or associated with other diseases (Hassan and Diachenko, 2022). Recent global estimation shows that food insecurity continues to worsen. Between 2023 and 2024, the prevalence of moderate or severe food insecurity rose from 57.5 to 58.9%, affecting an estimated 893 million people, of whom about 337 million faced severe levels (FAO, 2025). In 2024, nearly two-thirds of the population in both Eastern and Western Africa were affected by moderate or severe food insecurity (FAO, 2025). At the same time, rural exodus and unfavourable climatic conditions have led to low agricultural productivity and a shift to nonagricultural income-generating activities. Thus, unless significant efforts are made, the achievement of commonly formulated nutritional goals is not expected in the years to come. Due to the increasing number of significant weather events caused by climate change, such as persistent drought or irregular rainfall combined with widespread flooding and political upheaval, confidence in a reliable supply has been lost (Béné, 2020). In the face of this worrying situation, it is necessary to review the resilience of food systems, particularly in terms of food and nutrition security. Indigenous leafy vegetables today constitute important elements of the food systems and traditional health of rural communities in tropical regions. They contain essential minerals and vitamins necessary for maintaining human health, and bioactive components that enhance immunity to diseases and infections (Cogill, 2014; Neugart et al., 2017; Padulosi et al., 2013; Wang et al., 2014). Among the many indigenous vegetables available in Africa is *Corchorus olitorius*, commonly known as jute mallow. Recognized as a vegetable of very high nutritional quality, it grows more easily in rural subsistence farming systems than exotic plants such as cabbage and spinach (Modi et al., 2006). It is rich in carotene, various carotenoids, as well as vitamins B1, B2, C, and E, and also contains several essential minerals (Mavengahama et al., 2013). There is a growing interest in research on *Corchorus olitorius* due to its importance for Nutrition, human health and its applications in the food, cosmetic, phytotherapy, and pharmaceutical industries. Most scientific studies conducted on *Corchorus olitorius* have primarily focused on its nutritional profile and health benefits, often through laboratory-based research (Diete et al., 2024; Modi et al., 2006; Oelofse and Van Averbeke, 2012; Okugbo et al., 2022; Sha'a et al., 2019; Tadesse et al., 2025). While these studies are indispensable in highlighting the value of this leafy vegetable, they do not emphasize its modes of use within communities, who are the primary actors in its production, preparation, and consumption. Beyond its nutritional profile, the use of *Corchorus Olitorius* is deeply rooted in traditional knowledge encompassing its cultivation, culinary applications, and medicinal uses. Yet, this knowledge is rapidly eroding and remains insufficiently documented (Cernansky, 2015; Dansi et al., 2008; Kouchadé et al., 2016; Muchoki et al., 2023). Such under-documentation may lead to the marginalization of this vegetable and a missed opportunity to promote its value in food systems (Atuna et al., 2022). For instance, among African communities, the question arises: what role does *Corchorus olitorius* play in the daily lives of African households? How is it perceived across different generations? In what ways is it prepared, cooked, preserved, or incorporated into local diets? What are its health benefits? Are there beliefs, symbols, or taboos associated with its use?

Answering these questions is crucial, as household perceptions and practices directly influence the actual consumption of *Corchorus olitorius* and its sustainability within dietary habits. This review, therefore, explores household practices, traditional uses, and cultural meanings of *Corchorus olitorius* in selected countries of West Africa (Nigeria, Benin, Ghana, Côte d'Ivoire) and East Africa (Kenya, Tanzania, Uganda, Ethiopia), providing insights into its role beyond nutrition within local food systems.

2 Methodology

This study was conducted as a scoping review with qualitative thematic synthesis. It synthesized studies on the origin, diversity, and distribution of Corchorus in selected countries of West and East Africa; local names and symbolic meanings of *C. olitorius*; household preparation and culinary uses; traditional and medicinal uses; and cultural, religious, and household factors influencing its consumption. Literature searches were conducted in Web of Science, Scopus, PubMed, and Google Scholar for studies published from 2000 to 2025. Search terms combined the scientific name and common names of the plant with terms related to food use, traditional knowledge, ethnobotany, medicinal use, household practices, preservation, and culture. Studies were included if they met the following criteria: focused on *Corchorus olitorius* or included *C. olitorius* as one of the documented African leafy vegetables, reported evidence from African contexts, particularly West or East Africa, described at least one of the following dimensions: household preparation, culinary use, preservation, medicinal use, cultural meaning, symbolic value, taboo, consumer perception, or barrier/enabler to use, were based on empirical data, ethnobotanical surveys, recipe documentation, consumer studies, qualitative studies, or relevant reviews containing extractable information on *C. olitorius* use. Studies were excluded if they focused exclusively on laboratory-based nutrient composition, phytochemical analysis, antioxidant activity, agronomic performance, molecular characterization, or industrial applications of jute fiber, without any household, culinary, medicinal, or cultural information.

The search identified 482 records. After screening titles, abstracts, and full texts against the inclusion and exclusion criteria, 21 studies were retained for final analysis (Table 1). Because duplicate checking was performed during the search process and the exact number of duplicates was not recorded, the selection process is presented as a modified PRISMA-style flow diagram (Figure 1).

For each included study, information was extracted on author, year, country, methods, preparation practices, preservation techniques, medicinal uses, cultural meanings, taboos, and barriers or enablers to consumption. Extracted information was imported into ATLAS.ti 25 for qualitative coding and thematic synthesis. The analysis followed four main steps. First, the extracted data were read repeatedly to become familiar with the content. Second, initial codes were assigned to text segments describing household preparation, processing techniques, additives, final dish types, modes of consumption, staple accompaniments, medicinal uses, cultural beliefs, taboos, and special uses. Third, related codes were grouped into broader analytical categories, including household preparation and preservation,

medicinal uses, cultural and symbolic meanings, barriers/enablers to consumption, and regional patterns. Fourth, themes were compared across West and East Africa to identify shared practices, regional specificities, and evidence gaps. The resulting analytical framework, which links the evidence base, thematic domains, regional patterns, and food-system implications, is summarized in Figure 2. To reduce bias, extracted information was checked against the original articles, coding categories were revised iteratively, and themes were retained only when supported by patterns observed across multiple studies or countries.

3 Origin, diversity, and distribution of Corchorus in west and east Africa

The genus *Corchorus*, belonging to the family Malvaceae (formerly placed under Tiliaceae), is distributed throughout the tropical and subtropical regions of the world (Chang and Miau, 1989; Kundu, 1951). Numerous species, subspecies, varieties, and forms have been reported within the genus (Global Biodiversity Information Facility 2008: http://www.gbif.org). Among them, *Corchorus olitorius* was domesticated early in the course of civilization and has become one of the most commercially important cultivated species (Sinha et al., 2011). The primary Centre of origin and diversity of the wild taxa of *Corchorus* appears to be Africa, where a large number of species are reported (Kundu, 1951; Singh, 1976). According to (Sinha et al., 2011), wild species of *Corchorus* are widely distributed across both West and East Africa, with concentrations along the Gulf of Guinea in West Africa (Senegal, Gambia, Guinea, Sierra Leone, Liberia, Côte d'Ivoire (Ivory Coast), Ghana, Togo, Benin, Nigeria, Burkina Faso, Mali) and dense populations in East Africa (Ethiopia, Kenya, Tanzania, Uganda, Rwanda, Malawi, Mozambique, Madagascar).

Beyond its biological diversity, *Corchorus olitorius* also displays rich cultural diversity, reflected in the wide range of local names and symbolic meanings it holds across communities in West and East Africa.

4 Local names and symbolic meanings of *Corchorus olitorius* in west and east Africa

Corchorus olitorius is a leafy vegetable and medicinal plant central to traditional diets across Africa, the Middle East, and Asia. Its numerous vernacular names across regions reflect both rich linguistic diversity and the deep cultural significance attributed to the species.

In Benin, *Corchorus olitorius* is cultivated in nearly all localities. The plant has numerous vernacular names depending on the locality, but the most widely used is *Ninuwi* in the Fon language (Adebo et al., 2018). In Ghana, the dominant vernacular name is *Ayoyo* (Nyadanu et al., 2017). In Nigeria, the plant is highly integrated into local food culture and referred to as *Ewedu* among Yoruba speakers, *Ayoyo*, *Malafia*, *Tungurnuwa*, or *Lallo* among Hausa speakers, and *Kerenkere* or *Achingbara* among the Igbo (Abdulkareem et al., 2019). In Côte d'Ivoire, *C. olitorius* is locally known as *Kroala* (Diete et al., 2023).

In East Africa, similar variation exists. In Kenya, *Corchorus olitorius* is called *Mrenda or Murere* among the Luhya and *Apoth* among the Luo, and is one of the most consumed leafy vegetables (Muchoki et al., 2023). It's often consumed as a sauce accompanying starch staples such as ugali. In Uganda, the plant is commonly referred to as *Mutere*. However, overall consumption of indigenous leafy vegetables in the country remains relatively low (Adebo et al., 2018). In Tanzania, the Swahili name *Mlenda* is used, and the leaves are consumed as a slimy sauce accompanying staples like ugali (Kinabo et al., 2006). In Ethiopia, a wide range of vernacular names are reported, including *Awuachuye*, *Waymachc*, *Molukia*, and *Nyangkuajang* (Benor et al., 2010). In Amhara communities, *Molukia* and *Kudra* are used, while other ethnic groups refer to it as *Hololoka* or *Kefotugunta* (Fassil and Kebu, 2006; Grubben and Denton, 2004).

To improve readability and support cross-country comparison, the main vernacular names, household preparation and preservation practices, and reported medicinal or cultural uses identified in the reviewed studies are summarized in Table 2. This synthesis table complements the narrative analysis by highlighting both shared patterns and country-specific uses of *C. olitorius* across West and East Africa.

5 Household preparation practices and culinary uses

Across the reviewed studies, the dominant culinary pattern was the preparation of *Corchorus olitorius* as a mucilaginous sauce, soup, stew, or paste, eaten with cereal-, root-, or tuber-based staples. This pattern was reported across both West and East Africa, suggesting that the slimy texture of *C. olitorius* is not merely a sensory attribute, but a functional culinary trait that facilitates the consumption of starchy foods. However, country-level differences were observed mainly in the techniques used to obtain, preserve, or modify this mucilaginous texture, rather than in the general mode of consumption.

In West Africa, *C. olitorius* is commonly prepared as a slimy sauce or soup using fresh, dried, chopped, or pounded leaves. In Benin, sauces represent the main mode of preparation, and the leaves are used fresh or dried to accompany maize dough, "akassa," pounded yam, "agbéli," pounded cassava, black paste, semolina paste, rice paste, and other staples (Dansi et al., 2008; Adebo et al., 2018). The vegetable is also reported to be common in the diet of weaning children, underscoring its relevance not only as an adult staple accompaniment but also as part of household child-feeding practices (Adebo et al., 2018). Fresh leaves are usually washed, rubbed between the hands, chopped, and cooked with a small amount of potash to obtain the desired slimy consistency (Dansi et al., 2008). Although dried leaves can be stored in hermetically sealed containers for up to about 3 months, this preservation method remains limited by a lack of suitable drying infrastructure and by the dark coloration of sauces prepared from dried leaves, which may reduce their sensory acceptability (Adebo et al., 2018). Similar preparation patterns are reported in Nigeria, where *C. olitorius* is widely consumed as soup across geopolitical zones. Cooked leaves produce a viscous soup similar to okra, commonly eaten with starchy staples such as "amala," "eba," "semo," and "tuwo" (Nasir-Naeem et al., 2021). In Yorubaland, fresh leaves

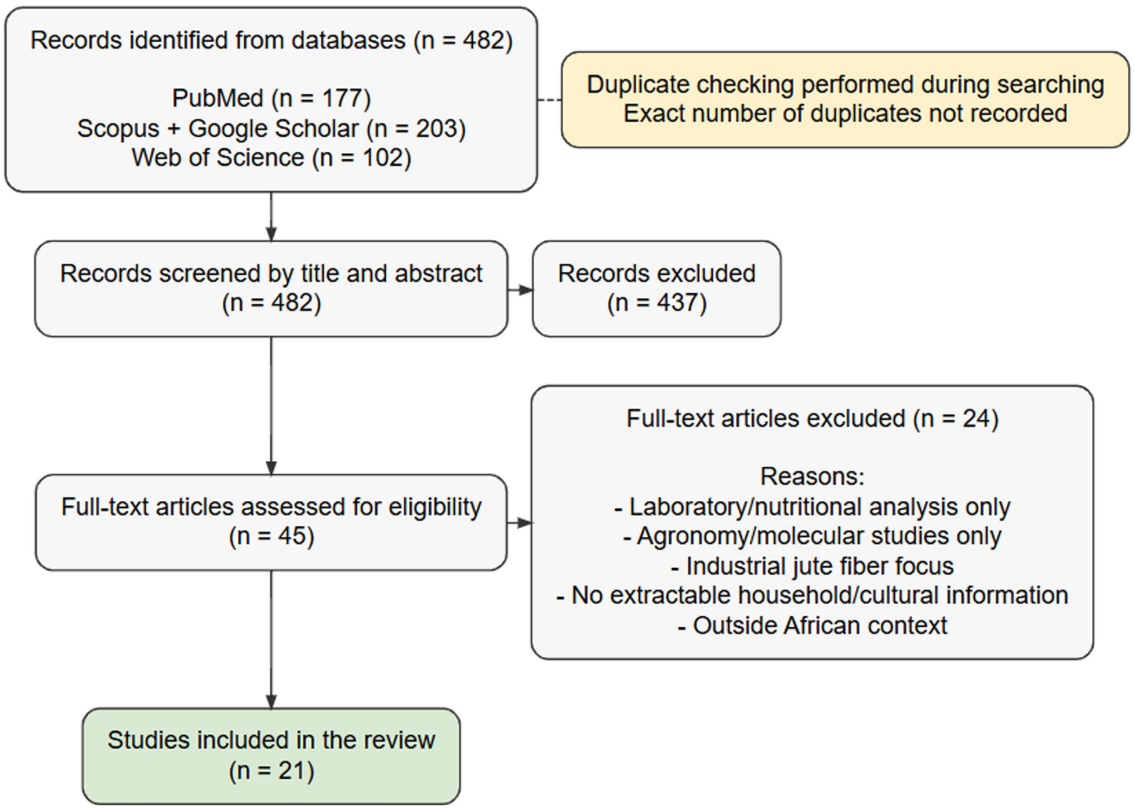


FIGURE 1
Modified PRISMA-style flow diagram showing the selection of studies included in the review.

are softened and reduced into a semi-consistent puree using a traditional utensil known as "ijabe" (Nasir-Naeem et al., 2021). As in Benin, potash is traditionally used to enhance tenderness and sliminess, while baking soda has emerged as a more recent substitute, particularly among younger consumers (Nasir-Naeem et al., 2021). Potash, locally known as "Kaun" among Yoruba, "Akanwa" among Igbo, and "Kanwa" among Hausa, is widely used in Nigerian food preparation and is described as one of the most common salts after sodium chloride (Alaribe et al., 2019; Momoh et al., 2019; Ngoualem et al., 2020). In Ghana, the leaves are also consumed mainly as soup or stew and served with cereal-based staples such as banku, tuo zaafi, and kenkey (Atuna et al., 2022). However, Ghanaian practices also highlight drying and powdering for later use during periods of scarcity, with sun-dried leaves pounded into powder and stored in bags for the dry season (Nyadanu et al., 2017). In Côte d'Ivoire, the preparation of *C. olitorius*, locally known as Kroala, shows both continuity with the wider West African pattern and specific local variations. Fresh or dried leaves are used to prepare sauces or pastes eaten with "placali," "kabato," rice, plantain fufu, yam fufu, and "kongondé" (Honoré et al., 2016; Diete et al., 2023). Diete et al. (2023) identified three main preparation forms: slimy sauce made from fresh chopped or pounded leaves with potash; paste sauce or roasted Kroala, prepared with oil and potash; and Namakou, a sauce made from dried leaf powder. These forms show that the same plant may be transformed into different dishes depending on ethnic group, locality, and household preference. For example, slimy sauce is particularly appreciated among the Baoulé, roasted Kroala among the Yacouba and Guéré, and Namakou among the Djoula and some foreign communities, including Nigeriens, Burkinabè, and Nigerians (Diete et al., 2023). The use of immature seeds as slimy sauce in localities such as Béoumi, Tiébissou, and Yamoussoukro further indicates that household uses are not limited to leaves alone (Diete et al., 2023). In East Africa, *C. olitorius* is also valued for its mucilaginous texture, but the reviewed studies more frequently emphasize mixed-vegetable preparations, household fermentation, and the use of traditional salts or enriching ingredients. In Kenya, the leaves are consumed alone or combined with other vegetables such as cowpea leaves and slenderleaf, and in some communities they are particularly associated with the diets of pregnant and lactating women (Muita and Kaindi, 2022). The leaves may be consumed fresh, dried, or fermented. Sun-drying is common and may be preceded by washing or blanching, while fermentation involves boiling the leaves, draining the water, immersing the vegetables in milk, and storing the covered product in a dark place for two to three days, or sometimes up to 7 days (Muita and Kaindi, 2022). The resulting product has a milky flavor and may be stored in a cool place, traditionally in an earthen pot or, more recently, in a stainless-steel pot or refrigerator where available (Muita and Kaindi, 2022). This Kenyan example is important because it shows that preservation is not only a technical process but also a household practice shaped by available utensils, storage conditions, taste preferences, and local knowledge.

Ugandan recipes further illustrate the importance of mixed-vegetable preparations and culturally named dishes. Among the Batoro in Fort Portal, *C. olitorius*, locally called Nyamusiri, is often combined with amaranth or taro leaves, boiled with traditional salt, and sometimes enriched with onions, tomatoes, and clarified butter, producing a dish eaten with finger millet bread (Maundu et al., 2006). Other recipes combine jute leaves with amaranth,

TABLE 1 Summary of reviewed studies grouped by region, country, and thematic contribution.

Region	Country	Author and date	Main domain	Methods/data sources	Main contribution to the review synthesis
West Africa	Benin	Adebo et al. (2018)	Ethnobotanical knowledge of *C. olitorius*	Ethnobotanical survey; structured questionnaires; MCA and AHC; farmer and trader interviews	Documents local knowledge, use diversity, and farmer/trader perceptions of *C. olitorius* in Benin.
		Fanou et al. (2020)	Medicinal ethnobotany, especially candidiasis treatment	Semi-structured interviews; traditional market surveys; healer knowledge	Highlights the medicinal value of *C. olitorius* and its role in traditional health practices.
		Adjatin et al. (2017)	Phenotypic diversity and ethnobotany	Ethnobotanical surveys; germination tests; diversity analysis; farmers' knowledge	Links local varietal diversity with farmers' knowledge, selection criteria, and conservation relevance.
		Dansi et al. (2008)	Traditional leafy vegetables	Participatory rural appraisal; ethnobotanical survey; local knowledge; field observations	Places *C. olitorius* within the broader diversity of traditional leafy vegetables used and maintained in Benin.
	Benin and Mali	Mitchodigni et al. (2025)	Trait preferences for traditional African vegetables, including *C. olitorius*	Focus group discussions; in-depth interviews; primary qualitative data	Shows the importance of farmer, trader, and consumer preferences for production, marketing, and crop improvement.
	Nigeria	Abo et al. (2008)	Ethnobotany and ethnopharmacology, especially diabetes management	Ethnobotanical survey; structured interviews; healer knowledge; plant inventories	Demonstrates the medicinal and ethnopharmacological importance of *C. olitorius* in traditional healthcare.
		Iliasu (2024)	Consumer preferences and attitudes toward dried *C. olitorius*	Structured questionnaires; probit regression; primary survey data	Provides evidence on consumer acceptance, preference drivers, and potential market development for dried *C. olitorius*.
		Nasir-Naeem et al. (2021)	Processing methods of *C. olitorius* in Ewedu soup	Proximate and mineral analysis; vitamin C analysis; viscosity test; laboratory experiments	Shows how processing methods affect nutritional quality, vitamin C retention, mineral composition, and viscosity.
	Côte d'Ivoire	Honoré et al. (2016)	Ethnobotany of *Corchorus* spp.	Ethnobotanical survey; interviews; plant collection; farmers and market vendors	Expands evidence on traditional uses, local knowledge, and diversity of *Corchorus* species in Côte d'Ivoire.
		Diete et al. (2023)	Morphological and ethnobotanical characterization	Ethnobotanical survey; snowball sampling; morphological analysis; farmers and traders	Combines ethnobotanical knowledge and morphological characterization to support diversity assessment and conservation.
	Ghana	Nyadanu et al. (2017)	Domestication and production constraints	PRA; surveys; germplasm collection; PCA and clustering; farmer interviews; field collections	Identifies production constraints, farmer-preferred traits, and domestication potential of *Corchorus* species.
		Atuna et al. (2022)	Consumption and preparation of indigenous vegetables	Cross-sectional survey; consumer perceptions; nutritional data	Provides broader evidence on consumption patterns, preparation practices, and perceptions of indigenous vegetables.

(Continued)

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TABLE 1 (Continued)

Region	Country	Author and date	Main domain	Methods/data sources	Main contribution to the review synthesis
East Africa	Kenya	Muchoki et al. (2023)	Farmers' knowledge, attitudes, and practices on African leafy vegetables	Gender-disaggregated focus group discussions; farmer group discussions	Highlights gendered knowledge, production practices, and constraints affecting African leafy vegetable use.
		Gido et al. (2017)	Consumer acceptance of African indigenous vegetables	Stratified multistage sampling; surveys; probit model; primary survey data	Shows consumer acceptance patterns and socioeconomic factors influencing demand for African indigenous vegetables.
	Ethiopia	Benor et al. (2010)	Collection and ethnobotany of *Corchorus* spp.	Ecogeographical surveys; ethnobotanical interviews; herbarium work; field collections	Provides evidence on species diversity, germplasm collection, farmer perceptions, and conservation potential.
		Fassil and Kebu (2006)	Ethnobotany of wild edible plants	Semi-structured interviews; FGDs; market surveys; indigenous knowledge; herbarium specimens	Situates *Corchorus* within broader wild edible plant knowledge, food use, and market practices.
		Tadesse et al. (2025)	Ethnobotany of wild edible plants	Interviews; guided field walks; FGDs; market surveys; Flora of Ethiopia	Updates evidence on wild edible plant use, local knowledge transmission, and community-based plant identification.
	Tanzania	Marimo and Otieno (2025)	Review of neglected and underutilized species	Literature review; stakeholder workshops; Crop Trust reports	Places *C. olitorius* within the neglected and underutilized species agenda and conservation discourse.
	Uganda	Kamatenesi-Mugisha and Oryem-Origa (2007)	Traditional medicinal vegetables	Ethno-botanical survey; interviews; healer and household knowledge	Shows the dual food–medicine role of traditional vegetables in household and healer knowledge systems.
		Nakaziba et al. (2021)	Traditional medicinal vegetables in Northern Uganda	Cross-sectional ethnobotanical survey; interviews; community and healer knowledge	Reinforces the medicinal, nutritional, and cultural relevance of traditional vegetables in community health systems.
		Maundu et al. (2006)	Traditional food recipes	Fieldwork; recipe documentation; household cooking practices	Provides evidence on household recipe diversity, preparation methods, and the culinary integration of *C. olitorius* in traditional Ugandan diets.

MCA, multiple correspondence analysis; AHC, ascending hierarchical classification; PRA, participatory research appraisal; FGDs, focus group discussions; IDIs, in-depth interviews; PCA, principal component analysis; ALVs, African leafy vegetables; AIVs, African indigenous vegetables; NUS, neglected and underutilized species; PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

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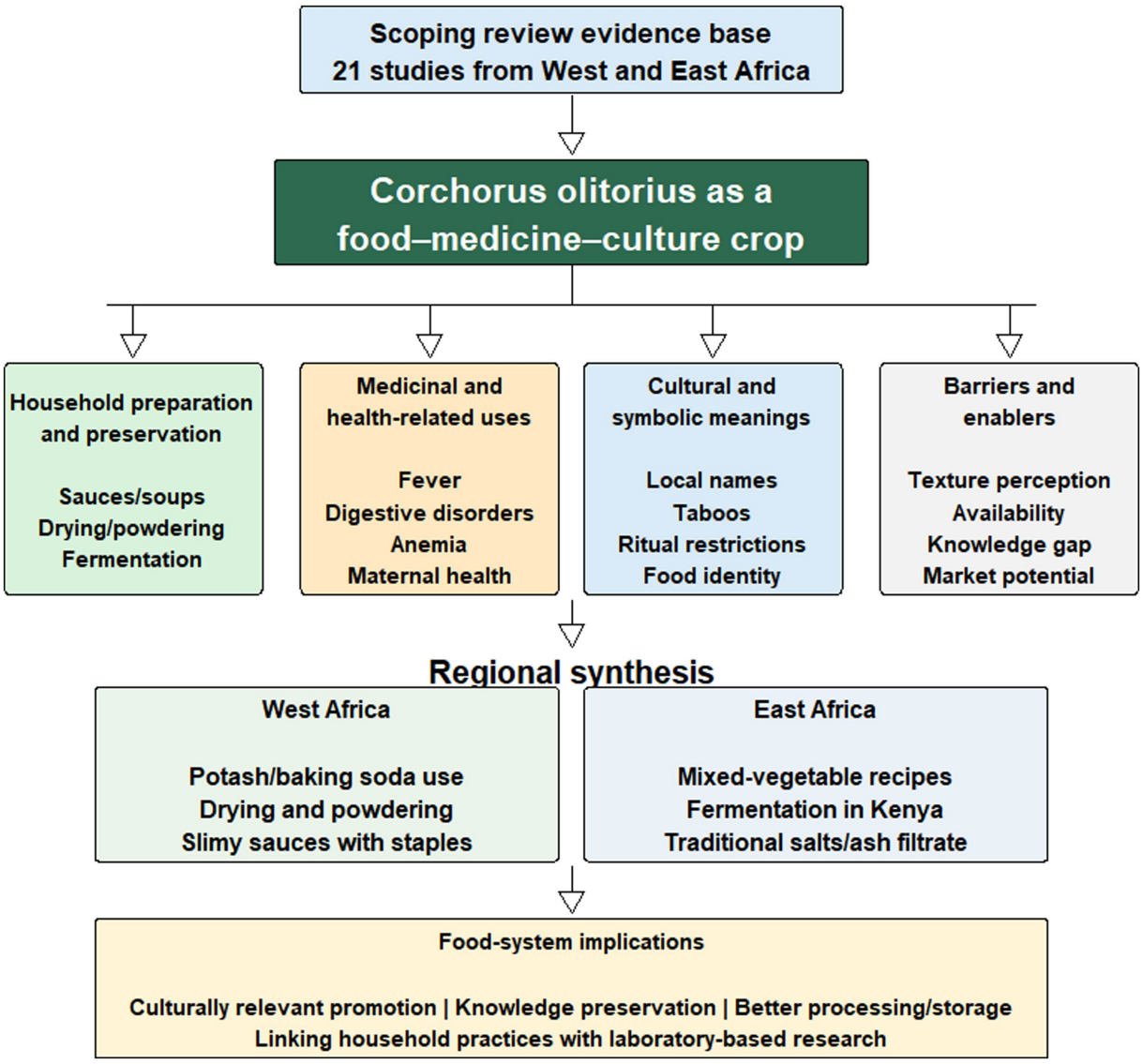


FIGURE 2
Conceptual synthesis of household, medicinal, and cultural dimensions shaping the use of *Corchorus olitorius* in West and East African food systems.

eggplant, cowpea leaves, groundnut paste, sesame, onions, ghee, ash filtrate, soda ash, or traditional salts, depending on the community. Among the Acholi, Teso, and Bakonjo, such combinations produce thick slimy sauces eaten with millet bread, cassava, sweet potatoes, posho, or atap (Maundu et al., 2006). These examples suggest that in Uganda, *C. olitorius* is not always treated as a single vegetable dish but as part of composite recipes in which texture, taste, nutritional density, and cultural identity are produced through combination with other ingredients.

Evidence from Tanzania and Ethiopia also confirms the importance of mucilaginous texture in East African culinary practices. In Tanzania, processing methods include boiling fresh leaves, sun-drying, and later cooking, while "Mlenda" is used as a broader name for leaves of different plant species that become slimy when chopped and cooked (Mwaisenye, 2019). In Ethiopia, the mucilaginous texture of fresh *C. olitorius* leaves is highly appreciated among the Agnuwak, Nuer, and Oduk peoples of Gambella Regional State, where the leaves are consumed mainly as leafy vegetables and sometimes mixed with cereals and meat (Benor et al., 2010). The use of both fresh and dried leaves among Oduk communities further indicates that preservation and texture management are also relevant in Ethiopian contexts (Benor et al., 2010).

Overall, the reviewed evidence shows that the household preparation of *C. olitorius* is organized around a shared culinary logic: transforming the leaves into a mucilaginous dish that accompanies starchy staples. The main regional differences lie in the methods used to produce, preserve, or enrich this texture. West African practices more frequently emphasize potash or baking soda, drying, powdering, and sauce or soup preparation, while East African practices show greater reliance on mixed-vegetable recipes, traditional salts, enriching ingredients such as groundnut paste or ghee, and, in Kenya, household fermentation. These differences suggest that preparation practices are central to the acceptability, nutritional quality, preservation potential, and cultural positioning of *C. olitorius*. Therefore, promoting this vegetable in sustainable food systems requires attention not only to its nutrient composition, but also to the household techniques, sensory expectations, and cultural food practices that shape how it is actually consumed.

TABLE 2 Summary of vernacular names, preparation practices, and reported uses of *Corchorus olitorius* in selected west and east African countries.

Country	Vernacular names reported	Main preparation/preservation practices	Reported medicinal, cultural, or household uses
Benin	Ninuwi	Fresh or dried leaves prepared as slimy sauce; eaten with maize dough, akassa, pounded yam, agbéli, cassava paste, black paste, semolina paste, and rice paste; potash used to enhance sliminess; dried leaves stored in sealed containers	Used in weaning foods; associated with blood formation, child feeding, fever, diarrhea, colic, and cultural restrictions linked to Vodun or fâ prescriptions
Nigeria	Ewedu, Ayoyo, Malafia, Tungurnuwa, Lallo, Kerenkere, Achingbara	Leaves prepared as viscous soup; softened with ijabe; potash traditionally used; baking soda reported as a recent substitute; eaten with amala, eba, semo, and tuwo	Reported in ethnomedicine for fever, malaria, anemia, digestive disorders, diabetes, asthma, and measles
Ghana	Ayoyo	Consumed as soup or stew; eaten with banku, tuo zaafi, and kenkey; leaves may be sun-dried, pounded into powder, and stored for dry-season use	Associated with food use, perceived health benefits, production constraints, and ceremonial use such as funerals in some communities
Côte d'Ivoire	Kroala	Fresh or dried leaves prepared as slimy sauce, paste sauce, roasted Kroala, or Namakou; eaten with placali, kabato, rice, plantain fufu, yam fufu, and kongondé; immature seeds also used in some localities	Reported for constipation, ulcers, hypertension, hypotension, cardiopathy, obesity, vertigo, typhoid fever, and cultural avoidance linked to texture or superstition
Kenya	Mrenda, Murere, Apoth	Leaves consumed fresh, dried, or fermented; eaten alone or mixed with other vegetables such as cowpea leaves and slenderleaf; fermentation may involve boiling, draining, adding milk, and storing for several days	Associated with pregnant and lactating women; reported for anemia and lactation; consumer acceptance influenced by socioeconomic and cultural factors
Uganda	Mutere, Nyamusiri, Otigo, Atigo, Mlenda	Mixed-vegetable recipes with amaranth, taro leaves, cowpea leaves, eggplant, groundnut paste, sesame, onions, ghee, ash filtrate, soda ash, or traditional salts; eaten with millet bread, cassava, sweet potatoes, posho, or atap	Reported as both food and medicine; used in household and healer knowledge systems, including fever management and maternal health-related uses
Tanzania	Mlenda	Fresh leaves boiled, sun-dried, and later cooked; "Mlenda" may refer broadly to slimy leafy vegetables	Reported in food practices and ethnobotanical uses, including abdominal and menstrual pain in some contexts; taboos and beliefs may affect child feeding perceptions

6 Traditional and medicinal uses of *Corchorus olitorius*

Across West and East Africa, *Corchorus olitorius* is highly valued not only as food but also as a medicinal plant with diverse therapeutic applications. Decoctions and infusions of leaves, stems, or roots are commonly used to treat malaria and other fevers. In Benin, it is often combined with lemon, moringa, or acacia leaves (Adebo et al., 2018). This practice is also observed in Nigeria, where the use of stem and leaf decoctions is widely reported in the southern states (Iyamah and Idu, 2015; Rafiu and Sonibare, 2017). In Côte d'Ivoire, *Corchorus olitorius* is used against typhoid fever and persistent pain (Honoré et al., 2016), while in Uganda, decoctions are used to manage fevers and by patients living with HIV (Nakaziba et al., 2021). Beyond this, the leaves, stems, and seeds are frequently used to treat diarrhea, dysentery, stomachache, ulcers, colic, and worm infestations. In Nigeria, studies have shown its use against constipation, dysentery, and abdominal pain (Ajibesin et al., 2012; Borokini and Omotayo, 2012). In Benin, decoctions are prepared against diarrhea and colic, sometimes with moringa leaves (Adebo et al., 2018). In Côte d'Ivoire, communities use leaf pastes or powders to treat constipation and ulcers (Honoré et al., 2016). In Tanzania, infusions are consumed for abdominal and menstrual pain as well as gonorrhea (Weinberger and Msuya, 2004). In some contexts, *Corchorus olitorius* is known as a plant that "gives blood" and treats anemia. In Benin, consumers explicitly associate its slimy sauce with iron intake and good source of nutrients for children (Adebo et al., 2018). Nigerian ethnomedicine reports its use against anemia, folic acid deficiency, and as a blood purifier (Borokini and Omotayo, 2012). Similar reports are observed in Côte d'Ivoire (Honoré et al., 2016), Ghana (Nyadanu et al., 2017), and Kenya, where it is used to treat anemia and to stimulate lactation in breastfeeding mothers (Gido et al., 2017).

Furthermore, decoctions are also used for female fertility problems and as remedies related to childbirth (Adebo et al., 2018). It is cited as a galactagogue that promotes milk production (Muita and Kaindi, 2022). It is also reported to support maternal health and fetal development and to ease childbirth (Nakaziba et al., 2021). Ethnobotanical surveys report applications in managing diabetes and cardiovascular conditions. In Nigeria, leaf decoctions are used to treat diabetes, while root infusions are reported to treat cancer (Abo et al., 2008; Adedeji et al., 2018). In Côte d'Ivoire, decoctions are cited for hypertension, hypotension, cardiopathy, obesity, and vertigo (Diete et al., 2023; Honoré et al., 2016). Topical applications are also frequent. In Ghana, macerated fresh leaves are applied to boils (Nyadanu et al., 2017). In Uganda, dried leaves are used against scabies (Nyadanu et al., 2017). In Benin, roots are employed against sexual weakness (Adebo et al., 2018), and in Nigeria, communities report their use against asthma and measles (Erinoso and Aworinde, 2012; Sonibare et al., 2009). Overall, medicinal uses were repeatedly

associated with fever, digestive disorders, anemia, maternal health, lactation, and chronic conditions. This pattern suggests that *C. olitorius* is perceived not only as a food plant but also as part of household health-care knowledge. However, the reported uses vary by country and study design, and most evidence comes from ethnobotanical surveys rather than pharmacological or clinical studies. These medicinal applications should be interpreted as reported ethnobotanical knowledge rather than confirmed clinical effects. Further pharmacological, toxicological, and clinical studies are needed to assess efficacy, safety, dosage, and possible interactions with conventional treatments.

7 Cultural, religious dimensions and household barriers/enablers

In Benin, the cradle of Vodun culture, plants play a fundamental role in religious practices (Juhé-Beaulaton, 2009). Members of certain traditional Vodun communities may be prohibited from consuming the leaves of *C. olitorius* permanently or periodically (during periods of the year when important rituals are practiced (Adebo et al., 2018). Some people and their families may also be prohibited from consuming jute by the *fâ* (the traditional oracle). In these cases, the plant becomes a totem for these families (Adebo et al., 2018). In Ghana, the use of *C. olitorius* is closely tied to significant cultural events, such as funerals, in some communities (Nyadanu et al., 2017). In Côte d'Ivoire, a small proportion of the population (some young people as well as traditional healers or diviners) reported that they do not consume *Corchorus olitorius*, either because of its slimy texture or for reasons of superstition (Diete et al., 2023). In Benin, some (especially women) believe that the slimy nature of the sauce facilitates the swallowing of food for children that are being weaned (Adebo et al., 2018). Some statements illustrate Beninese consumers' perceptions regarding the benefits of vegetables, such as "Vegetables provide a lot of blood to humans," which refers to their iron content, and "*Corchorus olitorius* leaves are often used to treat typhoid fever and hemorrhoids." These statements are based on consumers' experience and perceptions (Mitchodigni et al., 2025). In Kenya, understanding consumer acceptance of African indigenous leafy vegetables (AIVs) is important for enhancing their consumption and increasing micronutrient intake (Gido et al., 2017). In Côte d'Ivoire, the majority do not consider *Corchorus olitorius* as medicinal, but rather as food (Diete et al., 2023). In Tanzania, taboos and beliefs may also limit use. For example, some communities in Singida and Mkalama believe that *Corchorus Olitorius* does not provide the necessary nutrients for children (Lekey et al., 2024). Ineffective knowledge sharing among farmers, youth, and extension services is another challenge facing *Corchorus olitorius* production and sustainability, while young people also show a limited understanding of traditional vegetables, creating a generational gap in knowledge and interest. These findings indicate that cultural beliefs can act both as barriers and enablers. Restrictions linked to taboos or ritual prescriptions may reduce consumption in some groups, while beliefs related to blood formation, child feeding, maternal health, or ceremonial use may increase the plant's value in others. Therefore, interventions promoting *C. olitorius* should not treat culture solely as an obstacle, but as a system of meanings that can support or limit dietary adoption depending on the local context.

8 Implications for research

Corchorus olitorius may contribute to dietary diversification and micronutrient intake, particularly in contexts where indigenous leafy vegetables remain accessible, affordable, and culturally accepted (Oulai et al., 2015). The plant contributes in an essential way to food security by ensuring survival during periods of scarcity and by providing essential nutrients in diets, particularly in Africa (Croft, 2016). However, certain factors may affect its consumption, including sociocultural origins, eating habits, nutritional knowledge, and availability (Kiébré, 2016). At the same time, the botanical diversity of *Corchorus olitorius* remains insufficiently characterized. Many wild species and landraces remain poorly identified and classified, underscoring the need to document, classify, and conserve them as valuable genetic resources for nutrition and climate-resilient food systems.

Culinary practices are central to the nutritional, sensory, and cultural value of *C. olitorius*. Across West and East Africa, the plant is commonly prepared as a mucilaginous dish eaten with cereal-, root-, or tuber-based staples, suggesting that texture is a key driver of acceptability rather than a secondary culinary characteristic (Adebo et al., 2018; Atuna et al., 2022; Dansi et al., 2008; Nasir-Naeem et al., 2021; Benor et al., 2010; Kinabo et al., 2006; Mwaisenye, 2019). However, the ways households create, modify, and preserve this texture vary across regions. In West Africa, preparation often involves fresh or dried leaves, with potash or baking soda used to obtain the desired mucilaginous consistency, while drying and powdering are used selectively for off-season storage (Adebo et al., 2018; Atuna et al., 2022; Dansi et al., 2008; Nasir-Naeem et al., 2021; Nyadanu et al., 2017). In East Africa, preparation practices are more frequently characterized by mixed-vegetable recipes and, in some Kenyan contexts, by household fermentation, producing a milk-based product that is later cooked with onions and tomatoes (Maundu et al., 2006; Muita and Kaindi, 2022). Culturally named recipes also combine *C. olitorius* with other leaves such as amaranth and cowpea leaves, traditional salts, groundnut paste, sesame, onions, and ghee, and are consumed with staples such as ugali, millet bread, cassava, and sweet potatoes (Maundu et al., 2006). These regional differences show that nutrition promotion should not rely only on the nutrient profile of *C. olitorius* but should also consider local preparation methods, sensory preferences, preservation practices, and household knowledge. These findings have implications for urban consumers and younger generations, who may have limited exposure to indigenous food practices. Awareness and adoption could be strengthened through community cooking demonstrations, school- and university-based food education, youth-friendly recipe documentation, social media communication, and collaboration with urban food vendors, restaurants, and local chefs. Such strategies should not present *C. olitorius* only as a "traditional" or "rural" food, but as a culturally meaningful, nutritious, and adaptable vegetable that can be incorporated into contemporary diets.

Improved drying and preservation methods also require further investigation. Although sun- or shade-drying can extend availability during lean seasons, its use may be limited by infrastructure constraints, darkening of the final preparation, and reduced sensory appeal (Adebo et al., 2018; Dansi et al., 2008). The effects of drying, boiling, fermentation, potash, baking soda, and mixed-vegetable preparation on nutrient retention, bioavailability, food safety, texture, and consumer acceptability remain insufficiently documented. Future studies should therefore combine food composition analysis with

household-level research to generate recommendations that are both scientifically valid and culturally relevant.

Cultural meanings and restrictions shape consumption patterns. Taboos, prohibitions, beliefs, prescriptions, and important and/or special social events can play a significant role in the adoption and consumption of *Corchorus olitorius* within a household, a village, a city, or even a country. For example, in Benin, prohibitions linked to Vodoun and prescriptions of the *fâ* can restrict consumption of *Corchorus olitorius* (Adebo et al., 2018; Juhé-Beaulaton, 2009). Similarly, funerals in Ghana (Nyadanu et al., 2017); and superstitions in Côte d'Ivoire (Diete et al., 2023), among others, may also restrict consumption. Thus, understanding the acceptance of *Corchorus olitorius* is crucial, as it will enable us to propose solutions that build on "positive" beliefs, tactfully address limiting beliefs, and co-create with local moral authorities.

Despite a rise in studies documenting the nutritional composition and health benefits of *C. olitorius* (Mavengahama et al., 2013; Modi et al., 2006; Oelofse and Van Averbeke, 2012), the realities of preparation, preservation, beliefs, symbols, and taboos remain under-documented across countries and cultures (Adebo et al., 2018; Cernansky, 2015; Dansi et al., 2008; Diete et al., 2023; Kouchadé et al., 2016; Maundu et al., 2006; Muchoki et al., 2023; Muita and Kaindi, 2022). While cross-country comparisons are possible, the geographic coverage of eligible studies remains uneven and methodologies vary, limiting generalizability and comparability. Given that many existing studies emphasize laboratory-based nutrition and health profiles (Mavengahama et al., 2013; Modi et al., 2006; Oelofse and Van Averbeke, 2012), future work should integrate knowledge from households on how people cook, combine, preserve, and perceive *Corchorus olitorius* in daily life. Such integration is essential to capture adoption drivers, acceptability barriers, and real-world dietary impacts. At the same time, it is crucial to evaluate how household practices such as boiling, drying, fermenting, or adding potash affect the nutrient composition of the vegetable. Linking laboratory analysis with household research is essential to ensure nutrition recommendations are both scientifically sound and culturally relevant. Combining these approaches can generate practical guidance, strengthen the evidence on health benefits, and support the integration of *C. olitorius* into local food systems.

9 Conclusion

Corchorus olitorius plays roles beyond nutrition, contributing to diets, health practices, and cultural traditions in West and East Africa. This review shows that its real-world use is shaped not only by nutrient composition, but also by texture, preparation methods, preservation practices, medicinal perceptions, taboos, symbolic meanings, and local acceptability. Although traditional knowledge related to *C. olitorius* remains important, it is unevenly documented and at risk of erosion in several contexts. The findings highlight the need to integrate household practices and cultural meanings with laboratory-based nutrition, food safety, and processing research. Future interventions should combine nutritional evidence with culturally grounded strategies, including improved preservation methods, locally acceptable recipes, documentation of traditional knowledge, and community-based promotion involving women, elders, farmers, and local food actors.

Author contributions

SS: Investigation, Funding acquisition, Writing – review & editing, Conceptualization, Writing – original draft, Methodology. FK: Supervision, Writing – review & editing. MA-O: Writing – review & editing, Supervision, Project administration. NF-F: Writing – review & editing, Supervision. AM: Project administration, Methodology, Writing – review & editing, Supervision.

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