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Wild Fruits and their Role in Enhancing Food and Nutrition Security in Turkana: Narrative Review

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Abstract

Food and nutrition insecurity continues to be a threat mostly in the households that are in Arid and semiarid regions of Kenya where recurrent drought, agricultural productivity is low, with weak limited market systems that affects their access to diverse micronutrient rich foods. Indigenous wild fruits in Turkana County are climate resilient and supports food and nutrition especially in times of food shortage but these resources are underutilized. The study is a systematic synthesis of recent research about the nutritional ,medicinal composition and cultural uses of the most dominant indigenous wild fruits which are Desert Date (Balanites aegyptiaca), Indian Jujube (Ziziphus mauritiana), Tamarind (Tamarindus indica), White Raisin Tree (Grewia tenax), Leathery Boscia (Boscia coriacea),Smooth Dobera(Dobera glabra) and Toothbrush Tree(Salvadora persica).Research on these fruits from 2020 to 2025 show that these fruits are rich in energy-giving carbohydrates, proteins, dietary fibre and essential micronutrients (iron, zinc, calcium, potassium, and vitamin C) which is often lack in dryland carbohydrate based diet. Their bioactive content especially flavonoids, phenolic acids, carotenoids and saponins provide strong antioxidant, anti-inflammatory, anti-diabetic and hematinic functions show improvement in glycemic control, lipid profiles and anemia status. Traditional preservation methods such as drying, roasting and fermentation increases shelf life and enhance their nutritional quality of staple porridges used in lean season. Their utilization is limited due to lack of awareness, limited market and lack of supportive policy frameworks. The evidence shows that integration of these fruits in local food systems can increase the dietary diversity, improve micronutrient deficiencies and strengthen household resilience to climate related food shortages. Targeted interventions, value addition, community-based conservation, and policy recognition are necessary to unlock their potential. These wild fruits are a culturally accepted, relevant in addressing micronutrients deficiencies and improving food and nutrition security in Turkana County.

Keywords*: Indigenous wild fruits; Food and nutrition security; Turkana County; Nutritional composition; Traditional preservation*

Introduction

Nutrition and food insecurity continues to be a threat to human health and social development globally. It has affected sustainable development goal 2 progress, Food and Agriculture Organization (FAO) (FAO.,2024). About 733 million people were estimated to be undernourished in 2023 that is about 9.1% of the global population. This group account for 2.33billion with moderate or severe food insecurity (FAO, 2024). Sub-Saharan Africa is the most affected, where almost one out of every five people in the region are undernourished (GHI, 2024). About 80% of Kenya land mass is arid and semi-arid making most of the land prone to droughts. With the frequent droughts causes unreliable and low agricultural yields is a contributing factor to low food supply Kenya National Bureau of Statistics (KNBS) (KNBS, 2021; Bedesa *et al.*, 2024). Turkana is one of the most food-insecure regions in the country due to persistent droughts, poor infrastructure and conflict from neighboring tribes in Kenya, South Sudan, Uganda and Ethiopia over grazing resources, which causes poor access to nutritious foods with about 60.5% of the household's depending on relief food as the main source of food (Oduor *et al.*, 2024).

Food aid programmes, though temporarily supplementing caloric intake food distributed mostly consist of carbohydrate-based diets that are short of essential micronutrients. This has increased micronutrients deficiency, a type of malnutrition that is currently impacting over two billion individuals across the globe (Koffi *et al.*, 2022; Lowe, 2021Turkana's dietary diversity scores are still below five food groups per day, indicating inadequate intake of micronutrients, particularly zinc, iron, and vitamin A in children and women of reproductive age (Lokuruka, 2021; Kimathi *et al.*, 2024).

Turkana County's indigenous wild fruits provide naturally resilient food sources that are suited to the arid climate, despite the difficulties. The fruits have high nutritional value such as vitamins A, C, E and the B-complex with minerals, such as iron, zinc, and calcium. They are also sources of bioactive compounds such as flavonoids, tannins, carotenoids and phenolic acids that are antioxidants, anti-inflammatory and immune boosters (Aguilera *et al.*, 2024; Oduor *et al.*, 2023; Jiru *et al.*, 2023) .These fruits include Desert date (*B. aegyptica*), Indian jujube (*Z. mauritiana)*,Tamarind (*T. indica)*,White raisin tree *(G. tenax*), Smooth Dobera *(D. glabra)* and Leathery Boscia *(B. coriacea)*(Ngigi *et al.*, 2023;Khaled *et al.*, 2024).Despite their abundance and nutritional importance, their utilization is limited due to lack of awareness, poor market structures and lack of integration into local food policy (Oluoch *et al.*, 2023). They serve as an adaptable food source in communities residing in arid regions because of their drought tolerance and seasonal availability, which are crucial in closing the hunger gap (Hailemariam *et al.*, 2021).

This review integrates findings from peer-reviewed publications from 2000-2025, focusing on the most recent publications (2020-2025) on the topics of indigenous wild fruits and indigenous food systems. From Google Scholar, Scopus, and Web of Science, articles were located through structured searches. Relevant articles contained the following terms: "Indigenous wild fruits," *"food and nutrition security*," "*arid and semi-arid lands," "Turkana*," and "*climate-smart agriculture."* Focus was given to the indigenous fruit species of Sub-Saharan Africa and similar dryland areas, and the articles' descriptions of the species' nutritional value, their ethnobotanical interests, and their potential climate adaptations. To maximize evidence, both empirical and review articles were relied upon. Preference was given to studies that had recently published quantitative nutritional assessments or had otherwise described the health promoting potential of the food and assessed food system resiliency. To maximize evidence, both empirical and review-based articles were relied upon. Preference was given to studies that assessed the nutritional value of the foods. In keeping with transparency initiatives in narrative reviews, the procedure for documentation and selection of literature was described (Sukhera, 2022; Akinola et al., 2020).

Wild Fruits in Turkana County

Turkana County is an arid and semi-arid region (ASAL) with annual rainfall levels of less than 300 mm, high evapotranspiration rates and frequent droughts, which all hinder traditional agricultural methods. In this harsh ecological environment, a range of indigenous wild fruit varieties has proven to be resilient to moisture stress, and potential in the local food system (Shanghuhiya *et al.*, 2024).

Studies suggest that there are specific wild fruit tree species in Turkana County that have been given priority due to their nutritional and livelihood values. As an example, a comparative examination of conventional fruits, vegetables, and pulses in Kenya identified five fruit trees among the highest priorities in Kenya Tamarind (*T. indica)*, Adansonia digitata, Sclerocarya birrea, Desert date (*B. aegyptiaca)* and Indian jujube (*Z. mauritiana)* (Ngigi *et al.*,2023: Khaled et al., 2024; Shanghuhiya et al., 2024). Such species are commonly found in the dryland areas of Kenya which highlights the significance of wild fruits in the ASAL food systems (Oduor et al., 2023; Aguilera et al., 2024).

A household survey of the Turkana County found 73 Indigenous wild edible plant (IWEP) species of which 24 species were consumed by about 48.5 % of the households in six months. The research also found that 96% of the sampled households were severely food insecure (Alliance of Bioversity & CIAT, 2023). This observation emphasizes the twin nature of food insecurity and how wild fruits can bring resiliency to the region.

The most diverse category of IWEPs is made of wild fruit-bearing plants. As an example, fruit-bearing wild plant species (120 out of 199 total species) is reported in the drylands of Kitui County (Mutie, Rono, Kathambi, Hu and Wang, 2020). The variety of tree species represented in this area are Desert date *(B. aegyptiaca*) and Tamarind (*T. indica*) prove the wide range of wild fruit resources present in ASAL zones in Kenya.

Phenological flexibility relates to the ecological characteristic of species that fruit at different times of the year and thus the species contributes to the availability of food when there is low crop production or livestock production. A socio-ecological study of the conservation area of Desert Date *(B. aegyptiaca*) located between the Maasai mara and conservancies revealed that the shortage of younger trees, due to grazing and browsing of livestock, endangers the reproduction of this drought-resistant species though it is significant (Socio-Ecological Practice Research, 2023).

Consumption of indigenous wild fruits in Turkana reflects their role in dietary copying. On average, a consumption of 2.8 wild edible plant species per households in half a year, with 18% of households harvesting fruits almost on a daily basis. About 36.8% use them three to four times per week, and 45.4% consume them rarely (Alliance of Bioversity & CIAT, 2023). Among the common species consumed fruits are Indian Jujubee (*Z. Mauritiana*) (53.5 %), Tamarind *(T. Indica*) 24%, Smooth Dobera (*D. glabra*) 16%, white raisin tree (*Grewia tenax)* 52%, Doum palm (*Hyphaene compressa*) (51.8 %), and Leathery Boscia (*B. coriacea*) (29.4 %) (Oduor *et al.*, 2023; Oduor *et al.*, 2024).

Besides their nutritional value wild fruits also provide socio economic value. The survey in Kitui documented that fruits form 120 of wild food plants types used (Mutie *et al.*, 2020), highlighting the importance of wild fruits in the diet and possibly in the informal markets. To add on that indigenous knowledge is used for sustainable harvesting done by local elders and women maintains fruiting seasons calendar, identify maturity indicators and practice selective harvesting that enables regeneration practiced especially in Turkana (Oluoch *et al.*, 2023).

Although the use of wild fruits is limited due to a combination of the factors such as a longer distance to harvest location, knowledge gap in seasonality and limitation in the preservation process. It established that 67 % of non-consumers have mentioned distance as a constraint and 61.6 % cited seasonality knowledge gaps (Alliance of Bioversity; CIAT, 2023). A study carried out in Kitui cited that fruits were often left uncollected due to the inaccessibility and low value perception (Mutie *et al.*, 2020). Wild fruits in the Turkana County are resilient under dry environment this highlights their potential role in reducing micronutrients deficiency and promote food and nutrition security in the ASAL regions.

Nutritional Value of Selected Wild Fruits in Turkana County

Indigenous wild fruits in Turkana County offer important macro- and micronutrients that contribute to dietary diversity, resilience, and micronutrient adequacy in food insecure families on arid and ASALs. They are more important in the dry season, when traditional food sources become scarce, since they provide not only caloric value but also bioactive compounds that improve health and nutritional security (Ogada *et al.*, 2022). The ecological adaptation and nutritional enrichment a unique feature of the semi-arid ecosystem of Turkana is seen through the compositional properties of seven dominant species namely Toothbrush tree *(S. persica*), Smooth Dobera *(D. glabra*), Desert date *(B. aegyptiaca*), Indian jujube *(Z. mauritiana*), Tamarind *(T. indica*)*,* white-raisin tree *(G. tenax*)*,* and Leathery Boscia *(B. coriacea*)

Macronutrient Composition

Table1: Macronutrient Composition and Energy Content of Selected Indigenous Wild Fruits (Dry Weight Basis)

Species (Scientific name)	**Carbohydrates (%)**	**Protein (%)**	**Fat (%)**	**Fibre (%)**	**Energy (kcal/100g)**	**Key Notes**	**Source**
Ziziphus mauritiana (*Indian jujube*)	79–84	1.83	0.2	—	~350	High carbohydrate; energy dense	Kumar et al., 2023
Tamarindus indica (*Tamarind*)	72–78	3–4	—	~12	~320	High fibre; dry season food	Passos et al., 2025
Balanites aegyptiaca (*Desert date*)	60–65	5.3	15–20	—	—	Rich in healthy oils	El Harkaoui et al., 2024
Grewia tenax (White raisin tree)	~73	3.5	5.1	—	—	Locally important (Turkana)	Hamami et al., 2024
Salvadora persica (Toothbrush tree)	65–70	4–6	2–3	Present	—	Adapted to saline soils	Al-Shehri et al., 2020
Boscia coriacea (Leathery Boscia)	68–74	6.2–8.5	3.4–5.1	5.6–7.0	—	Moderate protein & fibre	Moriasi et al., 2024
Dobera glabra (Smooth Dobera)	62–70	7–9	2.5–4.8	6–8	—	Higher protein content	Moriasi et al., 2024; Ogada et al., 2022

Indigenous wild fruits in arid and semi-arid regions consistently show high carbohydrate densities (approx. 60–84%), moderate protein contributions (approx. 2–9%) and significant fibre content across species, confirming their role as energy-dense, nutritionally complementary foods. Their make-up is well suited to pastoral diets based on cereals, especially in dry periods when conventional food sources are scarce.

Table 2: Micronutrient and Mineral Composition of Selected Indigenous Wild Fruits (per 100 g edible portion)

Species (Scientific name)	Calcium (mg)	Potassium (mg)	Iron (mg)	Zinc (mg)	Magnesium (mg)	Other Nutrients	Key Notes	Source
Balanites aegyptiaca (Desert date)	165	498	4.2	1.3	—	—	Mineral-rich, supports dietary diversity	El Harkaoui et al., 2024
Ziziphus mauritiana (Indian jujube)	—	—	2.9	—	—	Vitamin C (84 mg), Phosphorus (65 mg)	Enhances iron absorption via vitamin C	Kumar et al., 2023
Tamarindus indica (Tamarind)	74	628	2.8	—	92	—	High potassium and magnesium	Passos et al., 2025
Grewia tenax (White raisin tree)	125	—	4.5	1.2	87	—	Important for addressing iron deficiency	Hamami et al., 2024
Boscia coriacea (Leathery Boscia)	130	—	4.1	—	—	—	Traditional micronutrient supplement	Moriasi et al., 2024
Dobera glabra (Smooth Dobera)	—	480	2.8	—	—	Sodium (170 mg)	Electrolyte source in drylands	Abdulkadir & Muktar, 2021
Salvadora persica (Toothbrush tree)	—	—	—	—	—	Electrolytes	Supports hydration and salt balance	Al-Shehri et al., 2020

In general, these fruits are good sources of bioavailable micronutrients, especially iron, calcium and potassium, which are generally deficient in cereal-based diets and thus, underscore their importance in combating hidden hunger in arid and semi-arid food systems.

Phenolic Compounds (TPC) and Antioxidant Capacity.

Indigenous wild fruits from Turkana have a high content of phenolic compounds that makes them useful and used as medicine. Indian Jujube *(Ziziphus mauritiana*) has a total phenolic content (TPC) of between 520 and 670mg gallic acid equivalent (GAE)/100g dry weight, and flavonoids of 180mg quercetin equivalents (Kumar *et al.*, 2023). The phenolic compound for both the oil and pulp from the Desert date *(Balanites aegyptiaca*) is between 350 to 480mg of gallic acid equivalents//100g.This shows that the antioxidant and anti-inflammatory properties associated with oil and pulp (El Harkaoui *et al.*, 2024). The fruit powder of White raisin tree (*Grewia tenax*) shows high DPPH (DPPH inhibition around 82 %) with the TPC of 410mg GAE/100 g (Hamami *et al.*, 2024).

The phenolic and tannin concentration between 280 to 430mgGAE/100 is present in pulp and seeds of *Tamarindus indica* (Tamarind) linked with antioxidant and lipid-modulating properties (Passos *et al.*, 2025). The leaves and stem bark extracts of Smooth Boscia *(Boscia coriacea*) are contain some level of flavonoid like quercetin and phenolic acid such as gallic and saponins that have been seen to be contributing to antioxidant and enzyme regulating functions (Tseha *et al.*, 2022; Moriasi *et al.*, 2024).Toothbrush tree *(Salvadora persica*) fruits have also been reported to have significant polyphenolic compounds such as salvadorine and 2-sitosterol though their antimicrobial is limited (Al-Shehri *et al.*, 2020).

Anti-Nutritional Factors

These fruits despite being nutritional they have anti-nutritional components including tannins, oxalates and saponins which can affect bioavailability of nutrients. The tannin content in *Tamarindus indica* (Tamarind) and Desert date (*Balanites aegyptiaca*) is 1.53.0% of dry weight and saponins in Balanites seeds is as high as 2.4 % (El Harkaoui *et al.*, 2024; Passos *et* *al.*, 2025). *Ziziphus mauritiana* (Indian jujube) has a moderate concentration of oxalate (0.22 ± 0.11 %) and phytate (0.11 ± 0.01 %) making it safe in human use (Kumar *et al.*, 2023). White raisin tree (*Grewia tenax*) total phenolic content of dried fruit powder averages 455.8 ± 12.6 mg GAE/100 g, total flavonoids at 100.4 ± 4.2 mg CE/100G and Leathery Boscia (*Boscia coriacea*) have phenolic of (TPC*) = 420 ± 18 mg GAE/100 g* confirming favorable phenolic to antinutrient ratio proving their nutritional and therapeutic value for those living in the Turkana arid region(Moriasi *et al.*, 2024; Hamami *et al.*, 2024). Some of the preservation methods used meant to reduce toxins are Drying, roasting, and soaking to make them safe for consumption (Ogada *et al.*, 2022).

Traditional uses of Wild Fruits in Turkana County.

Toothbrush tree *(Salvadora persica)*

Toothbrush tree *(Salvadora persica*) fruits are usually eaten fresh, picked straight from the tree. For longer shelf life, fruits might be sun dried and kept in baskets to be utilized during the dry months. Some households may grind the seeds, add them to the millet or sorghum flour to enhance the nutritional value of porridges or baked goods (Al-Shehri *et al.*, 2020).

Smooth Dobera *(Dobera glabra)*

The ripe Smooth Dobera (*Dobera glabra*) fruits are handpicked, then sun dried or roasted to help to neutralize or suppress natural bitter taste to allow the palatability. The dried pulp is ground into a paste to be added to the porridge or eaten as a snack. The seeds are also roasted and ground to enable the flour to be kept over long durations and later be utilized in food made of cereals (Abdulkadir *et al.*, 2021).

Desert Date *(Balanites aegyptiaca)*

The fruits of Desert Date (*Balanites aegyptiaca)* fruits are consumed fresh, sun dried or made into a flour mixed to porridge. The seeds are roasted and pressed to get oil and utilized with the meals also on cereals as additional energy. The young might be boiled and eaten as vegetables. The harvesting process is selective allowing the unripe fruits to regenerate thus making it sustainable (El Harkaoui *et al.*, 2024).

Indian Jujube *(Ziziphus Mauritania)*

Fruits of Indian Jujube (*Ziziphus mauritiana)* are eaten fresh when they are in the season or sun dried to preserve the fruits for consumption in seasons when they are not available. The pulp of the dried fruits is usually milled into a powder which is then mixed to cereals or legumes to enrich porridge. In some cases, seeds are roasted and milled to obtain flour or as additive to composite meals to contribute calories (Kumar *et al.*, 2023).

Tamarind *(Tamarindus indica)*

The pulp obtained from ripe pods is usually extracted and consumed, used for making local beverages and jam which is to be added in porridge and baked goods. Sometimes leaves are boiled for seasoning purpose but the pulp is the main edible part is the pulp (Passos *et al.*, 2025).

White Raisin Tree (*Grewia tenax)*

The ripe fruits are harvested either sun dried, consumed as snacks or grounded into powder to be added to cereals. The powder has a shelf life of several months and is used to enrich porridge especially times when there is a shortage of food. The drying process reduces bitterness of the fruit (Hamami *et al.*, 2024).

Leathery Boscia *(Boscia coriacea)*

The fruits of *Boscia coriacea* are eaten fresh, dried or boiled to make the flesh soft. Sun dried fruits are mixed with the staple grains to make nutrient-rich porridge (Moriasi *et al.*, 2024).

Medicinal Value of indigenous Wild Fruits from Turkana County

Indian Jujube (*Ziziphus mauritiana)*

Indian Jujube *(Ziziphus mauritiana*) fruits and leaves have Betulinic acid, quercetin, kaempferol, and saponins that reduce the effects of oxidative stress and control lipid and glucose metabolism. Methanolic extracts at 200mg/kg/BW in Wistar rats significantly improved the hepatic catalase and glutathione peroxidase by 35 and 42 % respectively (Pandey *et al.*, 2023).

The antioxidant effect from the flavonoids (hydrogen donating capacity) which neutralizes the reactive oxygen species and suppresses lipid peroxidation. The body weight cyclopeptide -alkaloid extracts at (150 mg/kg bw) reduced the fasting glucose by about 35% through the stimulation of β-cells (Sharma *et al.*, 2020). All these biochemical reactions support the traditional use of the plant for relieving fatigue, fever, and gastrointestinal discomfort.

Desert Date *(Balanites aegyptiaca)*

Desert date *(Balanites aegyptiaca*) fruits and seeds contain steroidal saponins (diosgenin and yamogenin) and unsaturated fatty acids which have antidiabetic hepatoprotective and antimicrobial functions (Murthy, 2020; Ahmed et al., 2023). The ethanolic extract of 250 mg/kg decreased the plasma glucose by 42% and triglycerides by 38% in diabetic models with metformin used as the positive control (Farag *et al.*, 2023). The seed-oil fractions containing 100 µg/mL -inhibiting the growth of *Escherichia coli* and *Staphylococcus aureus* by 85 % confirming its antimicrobial potential (Abdel- Rahman *et al.*, 2025). Through inhibition of α – glucosidase and membrane stabilization justifies its ethnomedical use in diabetes and liver conditions.

Tamarind (*Tamarindus indica*)

Tamarind *(Tamarindus indica*) seed coat and pulp are rich in polyphenols like catechin and procyanidin B 2 and organic acids including tartaric, citric and malic acid. Aqueous extracts of 300 mg/kg body weight reduced body temperature and tumor necrosis factor -α expression in hyperthermic mice matching ibuprofen (50 mg/kg body weight) (Oviedo *et al.*, 2024). The 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical-scavenging activity (r= +0.89) is strongly associated with the phenolic content (5.2 +0.3 mg GAE/g) confirming the antioxidant function (Dhiman *et al.*, 2025). These measures support the application of Tamarind as both laxative and digestive tonic whereby tartaric acid facilitates the release of bile and absorption of non-heme-iron to counter fatigue.

White Raisin Tree *(Grewia tenax)*

White Raisin Tree (*Grewia tenax)* fruits contain vitamin C (190mg/100g FW), iron (3.2mg/100g DW) and phenolic acids, gallic, ferulic, caffeic, which are antioxidant and anti-anemic. A 200 mg/mL aqueous pulp extract increased hemoglobin and serum iron by 18 and 22% in anemic mice after 14 days (Jiru *et al.*, 2023). Ascorbic acid is a reducing agent that converts ferric to ferrous iron increasing intestinal absorption while phenolics eliminate reactive oxygen species preventing erythrocytes (Hamami et 2 al., 2024). The mechanisms confirm traditional use in the treatment of weakness and anemia in arid areas.

Doum Palm *(Hyphaene compressa*).

Hyphaene compressa mesocarp and seeds contain high levels of chlorogenic acid, caffeic acid, and β -carotene that have cardioprotective and antioxidant properties. Ethanolic extracts at a concentration of 500 µg/mL inhibited LDL oxidation by 70 and 80% and scavenging of DPPH radicals respectively, these were equivalent to Trolox controls (Prakash *et al.*, 2022). Oral administration 250mg/kg of body weight reduced total cholesterol by 25% and HDL was increased by 19% improving lipid profiles (Oduor *et al.*, 2024). These effects of phenolic modulation of the lipid peroxidation and the endothelial function confirms community use in supporting the circulatory health.

Toothbrush Tree *(Salvadora persica*)

Toothbrush Tree *(Salvadora persica)* fruit and twig extracts have benzyl isothiocyanate and salvadorine responsible for anti-microbial and anti-inflammatory functions. Methanolic fruit extracts at 100 µg/ML inhibited streptococcus mutans by 90% that is similar to chlorhexidine controls (Aguilera *et al.*, 2024). These components prevent bacteria and suppress COX-2 reducing oral and intestinal inflammation this confirms traditional use of the twigs as toothbrush for its antimicrobial efficacy.

The table summarizes the medicinal uses of the indigenous wild fruits from Turkana County.

Table 3. Indigenous wild fruits and medicinal uses

Wild fruit	Key bioactivities	Mechanism / Extract	Effective dose / conc.	References
Indian Jujube *(Ziziphus mauritiana*)	Antioxidant, antidiabetic, anti-inflammatory	Methanolic extract ↑ CAT + GPx ↑ 35–42 %	150–200 mg/kg bw	Pandey *et al.* (2023); Sharma *et al.* (2020)

Desert Date *(Balanites aegyptiaca*)	Antidiabetic, antimicrobial, hepatoprotective	Saponins ↓ glucose 42 %, oil ↑ inhibition 85 %	100–250 mg/kg bw	Farag *et al.* (2023); Abdel-Rahman *et al.* (2025)
Tamarind *(Tamarindus indica*)	Antioxidant, antipyretic, digestive	Polyphenols ↓ TNF-α, enhance bile flow	300 mg/kg bw	Oviedo *et al.* (2024); Dhiman *et al.* (2025)
White Raisin Tree *(Grewia tenax*)	Anti-anemic, antioxidant	Vitamin C + iron ↑ Hb 18 %, Fe ↑ 22 %	200 mg/mL	Hamami *et al.* (2024); Jiru *et al.* (2023)
Doum Palm *(Hyphaene compressa*)	Cardioprotective, antioxidant	LDL oxidation ↓ 70 %, HDL ↑ 19 %	250 mg/kg bw	Prakash *et al.* (2022); Oduor *et al.* (2024)
Toothbrush Tree *(Salvadora persica*)	Antimicrobial, anti-inflammatory	Inhibits S. mutans 90 % @ 100 µg/mL	100 µg/mL	Aguilera *et al.* (2024)

Conclusion

In Turkana County, indigenous wild fruits are important for food security and nutrition, especially that many staple foods do not provide both macro- and micronutrients. Fruits like *B. aegyptiaca*, *Z. mauritiana*, *Tamarindus indica*, *G. tenax*, B. *coriacea*, *D. glabra*, and *S. persica*, being well adapted to the arid environment, are especially useful in the dry months of the year when many other food resources are not available. These fruits contain high levels of dietary fiber, carbohydrates, and vitamins and minerals that are essential for the nutrition of vulnerable populations. These fruits also contain many phytochemicals that influence the antioxidant and anti-inflammatory properties of traditional medicine of the treatment of Anemia, Diabetes, and Digestive Disorders. Despite the nutritional and cultural significance of these fruits, their potential is not well known, there is little integration into the market, and there is a lack of supportive policies. To address these constraints Value addition can be done, domestication of the fruits, and a progressive policy will improve the resilience of rural populations, also improve climate change impacts, and will provide dietary diversity to the populations of the dry and semi-dry regions which may contribute to more sustainable food supplies.

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