Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.7 No. 3 (2026): September 2026 Issue
https://doi.org/10.51168/3h8hj513
Review Article

Nutritional, medicinal, and ethnopharmacological properties of apricot vine, *Landolphia buchananii* (Hallier f.) Stapf: A narrative review.

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Abstract
Wild edible plants such as *Landolphia buchananii* (Hallier f.) Stapf provide dietary diversity, thereby enhancing overall health and nutrition of local communities. The present study was aimed at reviewing the nutritional, medicinal, and ethnopharmacological properties of *L. buchananii*. This study is based on literature obtained from scientific databases such as SpringerLink, PubMed, Scopus, Web of Science, Google Scholar, ScienceDirect, and SciELO, as well as literature obtained from pre-electronic sources such as books, book chapters, and other scientific publications obtained from the university library. This research showed that the fruit pulp of *L. buchananii* is a good source of energy, classic nutrients, minerals and nutritionally important amino acids. The species is also characterized by alkaloids, flavonoids, steroids, saponins, cardiac glycosides, phenolics and terpenoids. The bark, roots and leaves of *L. buchananii* are used as molluscicides and traditional medicine against bilharzia, malaria, stomach problems, andrological disorders, backache, gastro-intestinal diseases, gonorrhoea, gynaecological disorders, hernia, joint pain, urinogenital disorders and wounds. The fruit and stem bark extracts of *L. buchananii* demonstrated antinociceptive, antioxidant, antipyretic, and cytotoxicity activities. *Landolphia buchananii* has the potential to enhance nutrition and primary healthcare of local communities in tropical Africa. Future research on *L. buchananii* should focus on detailed nutritional, phytochemical, pharmacological, and toxicological evaluations of the species.

Keywords: *Apocynaceae family, Landolphia buchananii, materia medica, rubber vine, traditional ecological knowledge*
Submitted: *August 11, 2026* ***Accepted:*** *August 25, 2026* ***Published:*** *September 01, 2026*
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Introduction
Apricot vine (*Landolphia buchananii* (Hallier f.) Stapf) (Figure 1) is a multipurpose plant species valued for its edible fruits, source of traditional medicines, firewood, roofing or construction materials, and latex used as rubber. *Landolphia buchananii* belongs to the Apocynaceae family, commonly known as the dogbane family because some members of the family were traditionally used as dog poison (Endress and Bruyns, 2000; Simpson, 2019). The sinister and poisonous properties of plant species belonging to the Apocynaceae family outweigh their medicinal applications (Neuwinger, 2000). For example, there are several members of the Apocynaceae family that are referred to as "arrow poisons," and the sap and sometimes the seeds and roots of such species are used in various parts of tropical Africa (Schmidt et al., 2017; Dharani, 2019; Dharani and Yenesew, 2022). Some of these species that are categorized as "arrow poison" include *Acokanthera oblongifolia* (Hochst.) Benth. & Hook.f. ex B.D.Jacks., *A. oppositifolia* (Lam.) Codd, *A. schimperi* (A.DC.) Schweinf., *Adenium boehmianum* Schinz, *A. multiflorum* Klotzsch, *A. obesum* (Forssk.) Roem. & Schult., *Calotropis gigantea* (L.) W.T.Aiton, *C. procera* (Aiton) W.T.Aiton, *Rauvolfia afra* Sond., *R. rosea* K.Schum., *R. serpentina* (L.) Benth. ex Kurz, *Strophanthus caudatus* (L.) Kurz, *S. gratus* (Wall. & Hook. ex Benth.) Baill., *S. hispidus* DC., *S. kombe* Oliv., *S. sarmentosus* DC. and *S. speciosus* (Ward & Harv.) Reber (Van Wyk et al., 2005; Wink and Van Wyk, 2008; Van Wyk and Wink, 2015). The fruits, leaves, sap and wood of some of these species are toxic when eaten (Van Wyk and Gericke, 2018) due to alkaloids and cardiac glycosides (Neuwinger, 2000; Wink and Van Wyk, 2008; Van Wyk and Wink, 2015).

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Figure 1: *Landolphia buchananii* A: branch showing leaves and flowers, and B: branch showing fruit. Photos: BT Wursten

In some ethnobotanical literature sources and older taxonomical systems, *Landolphia buchananii* is placed in the Asclepiadaceae family. But molecular sequence data for the rbcL showed that the Asclepiadaceae family was nested within the Apocynaceae family, which led to the amalgamation of the two families (Sennblad and Bremer, 1996). Apocynaceae is a cosmopolitan family (except for polar regions), recorded in Asia, Europe, America, Australia and Africa across the subtropical and tropical regions as well as temperate zones (Patil et al., 2023). The family comprises about 378 genera and 5350 species, which are trees, erect or scandent shrubs, shrublets, subshrubs, climbers, perennial, rarely annual herbs, often succulents, glabrous or pubescent with milky or clear sap (Christenhusz and Byng, 2016; Endress et al., 2018; Ollerton et al., 2019). The leaves are simple, entire, pinnately veined, usually opposite, decussate or sometimes whorled, with stipules that, when present, are usually in the axils of the leaf stalks, sometimes with spines (Leistner, 2000). The flowers are bisexual, regular, occurring in cymes, often large, showy, and sweet-scented. Various cultures in tropical Africa where species of Apocynaceae such as *L. buchananii* are indigenous have kept records of their traditional uses and applications. It is therefore within this context that the current review was undertaken, aimed at compiling recent advances in the science of *L. buchananii* with respect to its past and present uses, as an important source of edible fruits and traditional medicine, while also highlighting gaps in our current knowledge of its phytochemical and pharmacological properties.

Materials and methods

This review critically examined the nutritional, medicinal and ethnopharmacological properties of *L. buchananii* in accordance with the Preferred Reporting Items for Systematic Reviews and meta-analyses (PRISMA) guidelines (Figure 2). The literature search for nutritional, medicinal and ethnopharmacological properties of *L. buchananii* was conducted from August 2025 to June 2026 using online databases such as Web of Science, Scopus, SpringerLink, Google Scholar, SciELO, PubMed and ScienceDirect. The pre-electronic sources, which included books, book chapters, journal articles, dissertations, and theses obtained from the University library, were also used. The keywords used in the search included "*Landolphia buchananii*" and English common names "apricot vine", "nandi rubber" and "rubber vine". An additional search was also conducted using the keywords "nutritional properties of *Landolphia buchananii*", "biological activities of *Landolphia buchananii*", "pharmacological properties of *Landolphia buchananii*", "ethnobotany of *Landolphia buchananii*", "medicinal uses of *Landolphia buchananii*",

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"phytochemistry of *Landolphia buchananii*" and "traditional uses of *Landolphia buchananii"*. The search covered publications from 1961 to 2026, a long period to capture literature on the nutritional, medicinal and ethnopharmacological properties of *L. buchananii.*

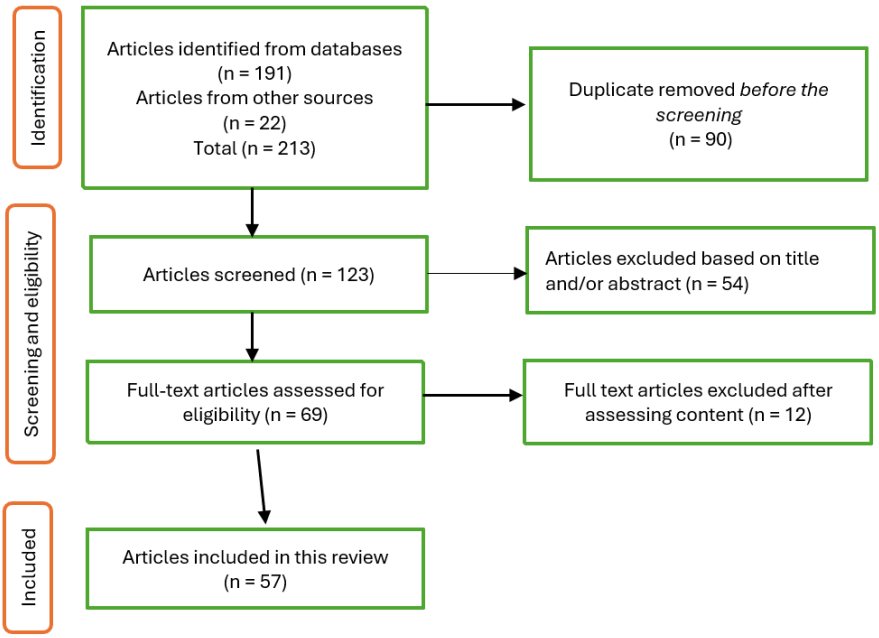

Figure 2: Flow diagram showing identification and screening of articles used in this review

Results and discussion

Taxonomy and botanical description of *Landolphia buchananii*

The genus *Landolphia* P.Beauv. consists of about 61 species recorded in Africa, Madagascar and Mascarene Islands (Leistner, 2000; Jongkind and Lachenaud, 2022; Nkosi and Mathalauga, 2024; Oladeji et al., 2024). Species belonging to the genus *Landolphia* are shrubs or woody climbers, climbing by sensitive inflorescences or tendrils, rarely dwarf shrubs or undershrubs characterized by milky sap. The genus name *Landolphia* is in honour of Jean François Landolphe (5 February 1747 to 13 July 1825), a French Navy commander and explorer who collected plant specimens in West Africa (Schmidt et al., 2017). The species name "*buchananii*" is in honour of Reverend John Buchanan (15 May 1855 to 9 March 1896), a Scottish missionary, horticulturist, farmer, explorer and plant collector in Malawi and other countries in tropical Africa (Glen, 2004; Ross, 2026). Synonyms of *L. buchananii* include *Clitandra buchananii* Hallier f., *C. kilimandjarica* Warb., *C. semlikiensis* Robyns & Boutique, *Jasminochyla ugandensis* (Stapf) Pichon, *Landolphia cameronis* Stapf, *L. kilimandjarica* (Warb.) Stapf, *L. rogersii* Stapf, *L. swynnertonii* S.Moore and *L. ugandensis* Stapf (Leeuwenberg et al., 1985; Thulin, 2006; Omino, 2008). The English common names of *L. buchananii* include "apricot vine", "nandi rubber" and "rubber vine" (Palgrave, 2002; Ruffo et al., 2002). *Landolphia buchanan* is a straggling shrub or woody liane, reaching 40 metres in height and a diameter of 23.0 centimeters (Omino, 2008). It consists of a single twining main stem with numerous strong tendrils formed by old inflorescence branches. The older stems are dark brown in colour, flexible, strongly and deeply fluted, resembling a bundle of parallel ropes, with older stems appearing almost like a bundle of separate vines with all parts exuding a sticky, watery, milky, and rubbery latex when injured (Leeuwenberg et al., 1985; Thulin, 2006; Omino, 2008). The leaves are shortly petioled, simple, opposite, elliptic to oblong in shape, featuring prominent veins; the midrib is channeled above and raised below, with lateral veins and net-veining somewhat depressed. The young leaves are smooth, leathery, often exhibiting a reddish

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tinge with a narrow but blunt tip. The inflorescence is terminal, corymbose or paniculate, with many small and sweetly scented flowers which are whitish to yellow in colour (Figure 1A). The fruit is globose to pear-shaped, hanging on a long, slender stalk, thinly fleshy at first, skin becoming a woody shell, light brown with spots (Figure 1B). The seeds are few to many, compacted and embedded in whitish and tangled fruit pulp. *Landolphia buchananii* occurs in well-drained and fertile soils in dense bushveld, rocky slopes, watercourses, hillside thickets, savanna, woodland, forest edges, rainforest, montane evergreen and riverine forests at an altitude ranging from sea level to 2500 m above sea level (Leeuwenberg et al., 1985; Burrows and Willis, 2005; Omino, 2008). *Landolphia buchananii* has been recorded in Burundi, Central African Republic, Democratic Republic of Congo (DRC), Kenya, Gabon, Malawi, Mozambique, Tanzania, Uganda, Zambia, Zimbabwe, Angola, Ethiopia, Nigeria, Rwanda, Cameroon, Sudan and South Sudan (Figure 3) (Drummond, 1975; Leeuwenberg et al., 1985; Dowsett-Lemaire, 1989; Da Silva, 2004; Mapaura and Timberlake, 2004; Burrows and Willis, 2005; Phiri, 2005; Thulin, 2006; Figueiredo and Smith, 2008; Omino, 2008; Darbyshire et al., 2015; Burrows et al., 2018; Ntore et al., 2022). *Landolphia buchananii* is morphologically similar to *L. kirkii* and can be distinguished using leaf and floral characters. The flowers of *L. buchananii* are considerably larger, with a longer pinkish tube and leaf lateral veins that are ridged below (Palgrave, 2002).

Figure 3: Distribution of *Landolphia buchananii* in tropical Africa

Traditional uses of *Landolphia buchananii*

The pulp surrounding seeds of *L. buchananii* is consumed fresh as supplementary food source by many traditional tribes in DRC (Marie et al., 2025), Ethiopia (Senbeta et al., 2013; Bekele and Reddy, 2014; Hankiso et al., 2023), Kenya (Maundu and Tengnas, 2005; Omino, 2008; Maua et al., 2018), Malawi (Maseko et al., 2017), Tanzania (Ruffo et al., 2002; Sakamoto et al., 2025) and Zimbabwe (Wild et al., 1972). In Ethiopia, Kenya and Zimbabwe, the fruit pulp of *L. buchananii* is used to make juice and preserves like jam

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(Wild et al., 1972; Hankiso et al., 2023, 2026). The fruits of *L. buchananii* are also consumed by birds and wild animals such as Lucifer sun squirrel (*Paraxerus lucifer*) and Sykes' monkey (*Cercopithecus albogularis*) (Dowsett-Lemaire, 1988; Burrows and Willis, 2005). The leaves and twigs of *L. buchananii* serve as fodder for both game and livestock species such as cattle, sheep and goats (Dowsett-Lemaire, 1988; Ruffo et al., 2002; Maundu and Tengnas, 2005). *Landolphia buchananii* is an important source of firewood in East Africa (Kaburi, 2010; Kaburi and Medley, 2011). The young stems and branches of *L. buchananii* are used for making roofs of houses and also construction materials, source of artisanal cordage, twisted into ropes for tying and binding needs in rural areas, weaving baskets and winnowing trays (Chaplin, 1961; Ruffo et al., 2002; Burrows and Willis, 2005; Maundu and Tengnas, 2005; Medley and Kalibo, 2007; Omino, 2008; Senbeta et al., 2013; Mbuvi et al., 2019). *Landolphia buchananii* is also used to make handles of agricultural implements and other items (Maua et al., 2018).

Latex collected from *L. buchananii* is collected from the stems of the species; it is allowed to coagulate and produces a high-quality rubber. Historical records show that large quantities of *L. buchananii* were collected and traded on local and regional markets as "nandi rubber" until the 1990s, when the Brazilian rubber tree, *Hevea brasiliensis* (Willd. ex A.Juss.) Müll.Arg. (Euphorbiaceae family) took over the world's rubber production (Nkosi and Mathalauga, 2024). In tropical Africa, *L. buchananii* latex was traditionally used as chewing gum, glue, and rubber substitute (Omino, 2008; Senbeta et al., 2013). Research shows that latex from several *Landolphia* species such as *L. buchananii*, *L. congolensis* (Stapf) Pichon, *L. eminiana* K.Schum. ex Hallier f., *L. glabra* (Pierre ex Stapf) Pichon, *L. heudelotii* A.DC., *L. kirkii* Dyer ex Hook.f., *L. lanceolata* (K.Schum.) Pichon, *L. landolphioides* (Hallier f.) A.Chev., *L. ligustrifolia* (Stapf) Pichon, *L. mannii* Dyer ex Dewèvre, *L. owariensis* P.Beauv., *L. parvifolia* (Stapf) Jongkind, *L. rufescens* (De Wild.) Pichon, *L. thollonii* Dewèvre and *L. villosa* J.G.M.Pers. were traditionally used to produce rubber (Tembo, 2013; Baumgärtel and Lautenschläger, 2023).

Landolphia buchananii is valued for its edible fruit, with sweet-tasting pulp which is gathered from the wild and often sold in local and regional markets in Ethiopia, Kenya and Tanzania (Ruffo et al., 2002; Maundu and Tengnas, 2005; Hankiso et al., 2023, 2026). It is for these reasons that *L. buchananii* is cultivated on a small-scale in East Africa for its edible fruits, latex production, and as a multipurpose species. Therefore, *L. buchananii* is currently facing threats from deforestation and agricultural expansion in the region, impacting its availability for its various uses. For example, in Tanzania, particularly around the Uluguru Mountains, timber harvesting is negatively affecting *L. buchananii* populations (Haji, 2017), and the species is also of conservation concern in Mozambique (Timberlake et al., 2016). Such impacts underline the need for coordinated action to ensure the sustainable use of *L. buchananii*.

Nutritional and phytochemical properties of *L. buchananii*

Researchers such as Baumgärtel et al. (2022, 2023) and Hankiso et al. (2026) investigated the nutritional properties of *L. buchananii* pulp (Table 1). Analyses of the pulp (Table 1) show that *L. buchananii* is an excellent source of energy, classic nutrients, and minerals. When compared to the recommended dietary allowance (RDA) representing the average daily intake of essential nutrients that are sufficient to meet the nutrient requirements of a healthy person (Table 1), *L. buchananii* shows good proportions of essential nutrients. Similarly, Nthiga et al. (2016a,b) identified alkaloids, flavonoids, steroids, saponins, cardiac glycosides, phenolics and terpenoids from *L. buchananii* stem bark extracts. Based on these documented nutritional and phytochemical compositions of *L. buchananii*, it implies that this species could enhance nutrition and health of local communities in tropical Africa.

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Table 1: Nutrients or elements of the fruit pulp of *Landolphia buchananii*

Nutrient or element	Value	Recommended dietary allowance (RDA)	Reference
Ash (g/100 g)	3.0	-	Hankiso et al., 2026
Calcium (mg/kg)	104.0	1.0 – 2.0	Baumgärtel et al., 2023
Carbohydrates (g/100 g)	66.0 – 74.02	130.0	Hankiso et al., 2026
Copper (mg/kg)	1.9	1.0 – 2.0	Baumgärtel et al., 2023
Energy (kcal/100 g)	330.23	-	Hankiso et al., 2026
Fat (g/100 g)	3.67	300.0	Hankiso et al., 2026
Fibre (g/100 g)	8.03	25.0 – 38.0	Hankiso et al., 2026
Histidine (g/100 g)	2.5	-	Baumgärtel et al., 2022
Iron (mg/100 g)	3.1 – 4.7	8.0 – 15.0	Baumgärtel et al., 2023; Hankiso et al., 2026
Isoleucine (g/100 g)	4.0	-	Baumgärtel et al., 2022
Leucine (g/100 g)	6.7	-	Baumgärtel et al., 2022
Lysine (g/100 g)	5.7	-	Baumgärtel et al., 2022
Magnesium (mg/kg)	166	310.0 – 320.0	Baumgärtel et al., 2023
Manganese (mg/kg)	9.5	1.8 – 2.3	Baumgärtel et al., 2023
Moisture (g/100 g)	52.9 – 79.1	-	Baumgärtel et al., 2022; Hankiso et al., 2026
Phenylalanine (g/100 g)	4.1	-	Baumgärtel et al., 2022
Phenylalanine + tyrosine (g/100 g)	6.9	-	Baumgärtel et al., 2022
Potassium (mg/kg)	2818	4700.0	Baumgärtel et al., 2023
Protein (g/100 g)	2.8 – 8.3	34.0	Baumgärtel et al., 2022; Hankiso et al., 2026
Sodium (mg/kg)	36.1	2300.0	Baumgärtel et al., 2023
Threonine (g/100 g protein)	3.4	-	Baumgärtel et al., 2022
Tyrosine (g/100 g protein)	2.8	-	Baumgärtel et al., 2022
Valine (g/100 g protein)	4.6	-	Baumgärtel et al., 2022
Vitamin B1 (mg/100 g)	0.2	1.2	Baumgärtel et al., 2022
Vitamin B2 (mg/100 g)	0.08	1.3	Baumgärtel et al., 2022
Vitamin C (mg/100 g)	43.2 – 106.8	46.0	Baumgärtel et al., 2022; Hankiso et al., 2026
Vitamin E (mg/100 g)	0.51	15.0	Baumgärtel et al., 2022
Zinc (mg/100 g)	2.6 - 2.9	8.0 – 11.0	Baumgärtel et al., 2023; Hankiso et al., 2026

Medicinal uses of *Landolphia buchananii*

Several researchers listed medicinal uses of *L. buchananii* in Zimbabwe, Tanzania, Kenya and Ethiopia (Table 2). Herbal medicines prepared from the roots, leaves and bark of *L. buchananii* are used for treating and managing 21 human and animal ailments and diseases in tropical Africa. The main ailments and diseases treated by *L. buchananii* include its use as a molluscicide and traditional medicine against andrological disorders, backache, bilharzia, gastro-intestinal diseases, gonorrhoea, gynaecological disorders, hernia, joint pain, malaria, stomach problems, urinogenital disorders and wounds (Figure 4). In Ethiopia, the leaf decoction of *L. buchananii* is used to induce mating or breeding in livestock (Lulesa et al., 2025). The fruits, leaves, and stem bark extracts of *L. buchananii* demonstrated antinociceptive, antioxidant, antipyretic, and cytotoxic activities in various experiments.

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Table 2: Medicinal applications of *Landolphia buchananii*

Medicinal uses	Parts used	Country	Reference
Abdominal pain	Root infusion taken orally	Zimbabwe	Gelfand et al., 1985
Andrological disorders	Root decoction taken orally	Tanzania	Schlage et al., 2000; Shangali et al., 2008
Backache	Leaf decoction taken orally	Kenya	Kareru et al., 2007; Nthiga et al., 2016a; Mutie et al., 2023
Bilharzia	Root decoction taken orally	Ethiopia	Quattrocchi, 2012; Bekele and Reddy, 2014
Colds	Root decoction taken orally	Ethiopia	Bekele and Reddy, 2014
Diarrhoea	Root decoction taken orally	Tanzania	Amri and Kisangau, 2012
Dysentery	Leaf maceration taken orally	Tanzania	Kingo and Maregesi, 2020
Gastro-intestinal diseases	Root decoction taken orally	Tanzania	Schlage et al., 2000; Shangali et al., 2008
Gonorrhoea	Leaf or root decoction or infusion applied topically	Ethiopia and Kenya	Jeruto et al., 2008a,b, 2010, 2015; Quattrocchi, 2012; Bekele and Reddy, 2014; Mutie et al., 2023
Gynaecological disorders	Root decoction taken orally	Tanzania	Schlage et al., 2000; Shangali et al., 2008
Headache	Root infusion taken orally	Zimbabwe	Gelfand et al., 1985
Hernia	Bark or root decoction taken orally	Tanzania	Mahonge et al., 2006; Amri and Kisangau, 2012
Joint pain	Leaf decoction applied topically	Kenya	Kareru et al., 2007; Nthiga et al., 2016a; Mutie et al., 2023
Malaria	Leaf decoction taken orally	Kenya	Nguta et al., 2010a,b, 2011a; Mutie et al., 2023
Molluscicide	Leaf infusion taken orally	Kenya	Jeruto et al., 2008a,b, 2010; Quattrocchi, 2012; Mutie et al., 2023
Stomach problems	Leaf maceration taken orally	Tanzania	Amri and Kisangau, 2012; Kingo and Maregesi, 2020
Syphilis	Root decoction taken orally	Ethiopia	Bekele and Reddy, 2014
Urinogenital disorders	Root decoction taken orally	Tanzania	Schlage et al., 2000; Shangali et al., 2008
Venereal diseases	Not specified	Kenya	Mutie et al., 2023
Wounds	Leaf infusion applied	Kenya	Jeruto et al., 2008a,b, 2010; Quattrocchi, 2012; Mutie et al., 2023; Wanga and Nyamboki, 2023
Ethnoveterinary medicine			
Induced mating	Leaf decoction taken orally	Ethiopia	Lulesa et al., 2025

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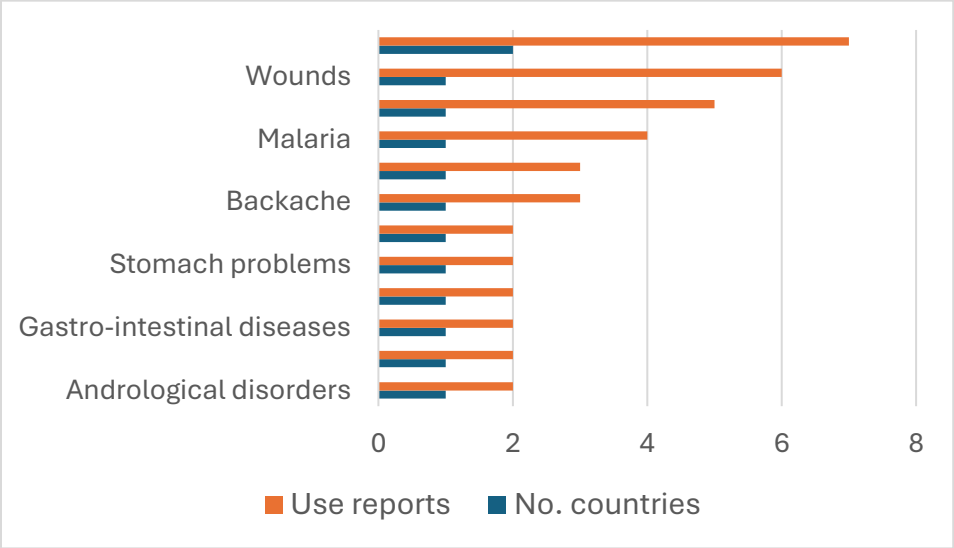

Figure 4: Main ethnomedicinal uses of *Landolphia buchananii* in tropical Africa

Antinociceptive activities

Nthiga et al. (2016b) evaluated the antinociceptive activities of methanolic extracts of *L. buchananii* stem bark using the formalin paw licking test in Wistar albino rats with diclofenac as the reference drug. The extract reduced pain by 35.4% to 55.2%, which was comparable to 20.0% to 76.8% demonstrated by the reference drug (Nthiga et al., 2016b).

Antioxidant activities

Hankiso et al. (2026) evaluated the antioxidant activities of the methanol extract of *L. buchananii* fruits using 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical scavenging assay with ascorbic acid as a positive control. The extract demonstrated activities with a half maximal inhibitory concentration (IC_{50}) value of 84.0 µg/ml, compared to 82.0 µg/ml exhibited by the positive control (Hankiso et al., 2026).

Antipyretic activities

Nthiga et al. (2016a) evaluated the antipyretic activities of the methanolic extract of *L. buchananii* stem bark by using 20.0% turpentine solution as the pyrexia-inducing agent in Wistar albino rats and then compared it with aspirin as the reference drug. The extract reduced the rectal temperature by between 0.32% and 2.52%, which was comparable to 1.70% and 2.32% demonstrated by the reference drug aspirin (Nthiga et al., 2016a).

Cytotoxicity activities

Nguta et al. (2011b) evaluated the cytotoxicity activities of organic and aqueous extracts of *L. buchananii* leaves using the *Artemia salina* bioassay with cyclophosphamide and etoposide as positive controls. The organic and aqueous extracts demonstrated moderate cytotoxicity activities against *Artemia salina,* exhibiting median lethal concentration (LC_{50}) values of 101.0 µg/ml and 249.0 µg/ml, respectively, against 6.0 µg/ml and 95.0 µg/ml exhibited by etoposide and cyclophosphamide, respectively (Nguta et al., 2011b).

Conclusion

Landolphia buchananii is best known for providing nutritional and health benefits to local communities in tropical Africa. But there is a need for advanced nutritional, phytochemical, and ethnopharmacological studies aimed at correlating traditional applications of the species with results from scientific studies. Future studies should therefore focus on standardized quality, mode of action, toxicology, evidence-based safety, and regulatory approvals involving *L. buchananii*. *In vitro, in vivo,* and clinical studies are the most convincing scientific methods of proving efficacy and safety of plant-based therapies and natural products involving *L. buchananii*.

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Limitations of the study

Access and identification of literature sources focusing on nutritional, medicinal uses, traditional ecological knowledge, and ethnopharmacological properties of *L. buchananii* were a major challenge. Therefore, information provided in this study is based on available scientific publications identified through a systematic literature review, which is often susceptible to publication, analysis, and interpretation bias.

Acknowledgments

The author would like to thank the reviewers for their comments and suggestions, which greatly improved the final quality of the manuscript.

Source of funding

The University of Fort Hare funded this research.

Author contributions

I am solely responsible for the conception and design of the research work, data collection, analysis, interpretation of the data, and writing of the manuscript.

Registration and protocol

The review was not registered, and a protocol was not prepared.

Competing interests

The author declares that there is no conflict of interest associated with this research.

List of abbreviations

DPPH - 2,2- diphenyl-1-picrylhydrazyl
DRC - Democratic Republic of Congo
IC_{50} - half maximal inhibitory concentration
LC_{50} - median lethal concentration
RDA - recommended dietary allowance

Availability of data, code, and other materials

All data generated or analyzed during this study are included in this article.

Author biography

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References

1. Amri, E., and Kisangau, D.P. (2012). Ethnomedicinal study of plants used in villages around Kimboza forest reserve in Morogoro, Tanzania. Journal of Ethnobiology and Ethnomedicine, 2012, 8, 1. https://doi.org/10.1186/1746-4269-8-1
2. Baumgärtel, C., and Lautenschläger, T. (2023). The genus *Landolphia* P.Beauv. (Apocynaceae): A comprehensive review on its ethnobotanical utilizations, pharmacology and nutritional potential. Journal of Ethnopharmacology, 303, 115946. https://doi.org/10.1016/j.jep.2022.115946
3. Baumgärtel, C., Förster, A., Frommherz, L., Henle, T., Ramiro, G.J., Afonso, F. and Lautenschläger, T. (2022). Potential and nutritional properties of local food plants from Angola to combat malnutrition: suitable alternatives to frequently cultivated crops. Journal of Applied Botany and Food Quality, 95, 143–153. https://doi.org/10.5073/JABFQ.2022.095.019.
4. Baumgärtel, C., Götzke, L., Weigand, J.J., Neinhuis, C., Panzo, M.H.G., Afonso, F., and Lautenschläger, T. (2023). Beneficial or hazardous? A comprehensive study of 24 elements from wild edible plants from Angola. Journal of Applied Botany and Food Quality, 96, 30-40. https://doi.org/10.5073/JABFQ.2023.096.004.
5. Bekele, G., and Reddy, P.R. (2014). Plants of Magada forest used in traditional management of human ailments by Guji Oromo tribes in Bule Hora – Dugda Dawa districts, Borana Zone, Oromia, Ethiopia. Asian Academic Research Journal of Multidisciplinary, 1(27), 202-221.
6. Burrows, J.E., and Willis, C.K. (2005). Plants of the Nyika Plateau: An account of the vegetation of the Nyika National Parks of Malawi and Zambia. Southern African Botanical Diversity Network Report No. 31, SABONET, Pretoria.
7. Burrows, J.E., Burrows, S.M., Lötter, M.C., and Schmidt, E. (2018). Trees and Shrubs Mozambique. Publishing Print Matters (Pty), Cape Town.

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.7 No. 3 (2026): September 2026 Issue
https://doi.org/10.51168/3h8hj513
Review Article

8. Chaplin, J.H. (1961). Notes on traditional smelting in northern Rhodesia. The South African Archaeological Bulletin, 16(62), 53-60.
9. Christenhusz, M.J.M., and Byng, J.W. (2016). The number of known plant species in the world and its annual increase. Phytotaxa, 261(3), 201–217. https://doi.org/10.11646/phytotaxa.261.3.1.
10. da Silva C,M., Izdine, S., and Amuse, A.B. (2004). A preliminary checklist of the vascular plants of Mozambique. Southern African Botanical Diversity Network Report No. 30, SABONET, Pretoria.
11. Darbyshire, I., Kordofani, M., Farag, I., Candiga, R., and Pickering, H. (2015). The plants of Sudan and South Sudan. Kew Publishing, Royal Botanic Gardens, Kew, Richmond.
12. Dharani, N. (2019). Field guide to common trees and shrubs of East Africa. Struik Nature, Cape Town.
13. Dharani, N., and Yenesew, A. (2022). An illustrated guide to medicinal plants of East Africa. Struik Nature, Cape Town.
14. Dowsett-Lemaire, F. (1988). Fruit choice and seed dissemination by birds and mammals in the evergreen forests of upland Malawi. Revue d'Écologie (La Terre et La Vie), 43(3), 251-285.
15. Dowsett-Lemaire, F. (1989). The flora and phytogeography of the evergreen forests of Malawi. I: Afromontane and mid-altitude forests. Bulletin du Jardin Botanique National de Belgique, 59(1/2), 24.
16. Drummond, R.B. (1975). A list of trees, shrubs and woody climbers indigenous or naturalized in Rhodesia. Kirkia, 10(1), 229–286.
17. Endress, M.E., and Bruyns, P.V. (2000). A revised classification of the Apocynaceae s.l. Botanical Review 66(1), 1-56. https://doi.org/10.1007/BF02857781.
18. Endress, M.E., Meve, U., Middleton, D.J., and Liede-Schumann, S. (2018). Apocynaceae. In: Kubitzki, K. (editor). The families and genera of vascular plants. Springer, Leiden, pp. 207–411.
19. Figueiredo, E., and Smith, G.F. (2008). Plants of Angola. Strelitzia 22, National Botanical Institute, Pretoria.
20. Gelfand, M., Drummond, R.B., Mavi, S., and Ndemera, B. (1985). The traditional medical practitioner in Zimbabwe: His principles of practice and pharmacopoeia. Mambo Press, Gweru.
21. Glen, H. (2004). Sappi: What's in a name? The meanings of the botanical names of trees. Jacana Media (Pvt) Ltd, Johannesburg.
22. Haji, H.M. (2017). Diversity of medicinal trees in Unguja Central District, Zanzibar. MSc Dissertation, University of Dodoma, Dodoma.
23. Hankiso, M., Warkine, B., Asfaw, Z., and Debella, A. (2023). Ethnobotany of wild edible plants in Soro District of Hadiya Zone, southern Ethiopia. Journal of Ethnobiology and Ethnomedicine, 19, 21. https://doi.org/10.1186/s13002-023-00588-2.
24. Hankiso, M., Lulekal, E., Asfaw, Z., Warkineh, B., and Getachew, P. (2026). Biochemical composition and antioxidant activity of three wild edible plants from Soro District of Hadiya Zone, Ethiopia. Food Chemistry Advances, 10, 101220. https://doi.org/10.1016/j.focha.2026.101220.
25. Jeruto, P., Lukhoba, C., Ouma, G., Otieno, D., and Mutai, C. (2008a). Herbal treatments in Aldai and Kaptumo divisions in Nandi District, Rift Valley Province, Kenya. African Journal of Traditional Complementary and Alternative Medicines, 5(1), 103–105.
26. Jeruto, P., Lukhoba, C., Ouma, G., Otieno, D., and Mutai, C. (2008b). An ethnobotanical study of medicinal plants used by the Nandi people in Kenya. Journal of Ethnopharmacology, 116, 370–376. https://doi.org/10.1016/j.jep.2007.11.041.
27. Jeruto, P., Mutai, C., Ouma, G., Lukhoba, C., Nyamaka, R., and Manani, S.D. (2010). Ethnobotanical survey and propagation of some endangered medicinal plants from South Nandi district of Kenya. The Journal of Animal and Plant Science, 8, 1016–1043.
28. Jeruto, P., Too, E., Mwamburi, L.A., and Amuka, O. (2015). An inventory of medicinal plants used to treat gynaecological obstetric-

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.7 No. 3 (2026): September 2026 Issue
https://doi.org/10.51168/3h8hj513
Review Article

urino-genital disorders in South Nandi Sub County in Kenya. Journal of Natural Sciences Research, 5(18), 136-152.

29. Jongkind, C.C.H., and Lachenaud, O. (2022). Novelties in African Apocynaceae. Candollea, 77, 17–51. https://doi.org/10.15553/c2022v771a3.
30. Kaburi, S.M. (2010). Community perspectives on fuelwood resources: Enrichment and extraction along the eastern slopes of Mt. Kenya. MA Dissertation, Miami University, Ohio.
31. Kaburi, S.M., and Medley, K.E. (2011). Community perspectives on fuelwood resources in East Africa. Mountain Research and Development, 31(4), 315-324. https://doi.org/10.1659/MRD-JOURNAL-D-10-00121.1.
32. Kareru, P.G., Kenji, G.M., Gachanja, A.N., Keriko, J.M., and Mungai, G. (2007). Traditional medicines among the Embu and Mbeere peoples of Kenya. African Journal of Traditional Complementary and Alternative Medicines 4(1), 75-86. https://doi.org/10.4314/ajtcam.v4i1.31193.
33. Kingo, R.M., and Maregesi, S.M. (2020). Ethnopharmacological study on some medicinal plants used in Ujiji, Kigoma, Tanzania. The Journal of Phytopharmacology, 9(2), 102-109. https://doi.org/10.31254/phyto.2020.9205.
34. Leeuwenberg, A.J.M., Kupicha, F.K., Barink, M.M., Beentje, H.J., De Kruif, A.P.M., Plaizier, A.C., and Zwetsloot, H.J.C. (1985). Apocynaceae. In: Launert, E. (editor). Flora Zambesiaca volume 7 part 2. Flora Zambesiaca Managing Committee, London, pp. 395–503.
35. Leistner, O.A. (2000). Seed plants of southern Africa: Families and genera. Strelitzia 10, National Botanical Institute, Pretoria.
36. Lulesa, F., Alemu, S., Kassa, Z., and Awoke, A. (2025). Ethnobotanical investigation of medicinal plants utilized by indigenous communities in the Fofa and Toaba sub-districts of the Yem Zone, Central Ethiopian Region. Journal of Ethnobiology and Ethnomedicine, 21, 14. https://doi.org/10.1186/s13002-025-00768-2.
37. Mahonge, C.P.I., Nsenga, J.V., Mtengeti, E.J., and Mattee, A.Z. (2006). Utilization of medicinal plants by Waluguru people in East Uluguru Mountains, Tanzania. African Journal of Traditional Complementary and Alternative Medicines, 3(4), 121-134. https://doi.org/10.4314/ajtcam.v3i4.31183.
38. Mapaura, A., and Timberlake, J. (2004). A checklist of Zimbabwean vascular plants. Southern African Botanical Diversity Network Report No. 33, SABONET, Pretoria.
39. Marie, C.F. De Dieu, M.M.J., Augustin, B.K., Josue, A.S., and Zabo, I.A. (2025). Diversity, availability, and uses of wild edible fruits in the Montane South Kivu, D.R. Congo, Western Albertine Rift. East African Journal of Environment and Natural Resources, 8(2), 561-586. https://doi.org/10.37284/eajenr.8.2.3622.
40. Maseko, H., Shackleton, C.M., Nagoli, J., and Pullanikkatil, D. (2017). Children and wild foods in the context of deforestation in rural Malawi. Human Ecology, 45, 795–807. https://doi.org/10.1007/s10745-017-9956-8.
41. Maua, J.O., Tsingalia, M.H., and Cheboiwo, J. (2018). Species diversity and utilization of nontimber forest products (NTFPs) by households adjacent to South Nandi Forest, Kenya. Journal of Natural Sciences Research, 8, 2224–3186.
42. Maundu, P., and Tengnas, B. (2005). Useful trees and shrubs for Kenya. World Agroforestry Centre, Nairobi.
43. Mbuvi, M.T.E., Kungu, J.B., Gachathi, F.N., Leley, C.W.N., and Muthini, J.M. (2019). Annotated checklist of plant species of Loita Forest (Entim e Naimina Enkiyio Forest or the forest of the lost child), Narok County, Kenya. International Journal of Advanced Research in Biological Sciences, 6(3), 54–110. http://dx.doi.org/10.22192/ijarbs.2019.06.03.006.
44. Medley, K.E., and Kalibo, H.W. (2007). Ethnobotanical survey of 'wild' woody plant resources at Mount Kasigau, Kenya. Journal of East African Natural History, 96(2), 149-186. https://doi.org/10.2982/0012-8317(2007)96[149:ESOWWP]2.0.CO;2.

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.7 No. 3 (2026): September 2026 Issue
https://doi.org/10.51168/3h8hj513
Review Article

45. Mutie, F.M., Mbuni, Y.M., Rono, P.C., Mkala, E.M., Nzei, J.M., Phumthum, M., Hu, G.-W., and Wang, Q.-F. (2023). Important medicinal and food taxa (orders and families) in Kenya, based on three quantitative approaches. Plants, 12, 1145. https://doi.org/10.3390/plants12051145.

46. Neuwinger, H.D. (2000). African traditional medicine. MedPharm Scientific Publishers, Stuttgart.

47. Nguta, J.M., Mbaria, J.M., Gathumbi, P.K., Gakuya, D., Kabasa, J.D., and Kiama, S.G. (2011a). Ethnodiagnostic skills of the Digo community for Malaria: A lead to traditional bioprospecting. Frontiers in Pharmacology, 2, 30. https://doi.org/10.3389/fphar.2011.00030.

48. Nguta, J.M., Mbaria, J.M., Gakuya, D.W., Gathumbi, P.K., Kabasa, J.D., and Kiama, S.G. (2011b). Biological screening of Kenya medicinal plants using *Artemia salina* L. (Artemiidae). Pharmacologyonline, 2, 458478.

49. Nguta, J.M., Mbaria, J.M., Gakuya, D.W., Gathumbi, P.K., and Kiama, S.G. (2010a). Antimalarial herbal remedies of Msambweni, Kenya. Journal of Ethnopharmacology, 128, 424–432. https://doi.org/10.1016/j.jep.2010.01.033.

50. Nguta, J.M., Mbaria, J.M., Gakuya, G.W., Gathumbi, P.K., and Kiama, S.G. (2010b). Traditional antimalarial phytotherapy remedies used by the South Coast community, Kenya. Journal of Ethnopharmacology, 131, 256–267. https://doi.org/10.1016/j.jep.2010.06.031.

51. Nkosi, N., and M Mathalauga, M. (2024). *Landolphia kirkii* Dyer ex Hook.f. South African Biodiversity Institute, Pretoria. Available at: https://pza.sanbi.org/landolphia-kirkii, accessed on 11 March 2026.

52. Nthiga, P.M., Kamau, J.K., Safari, V.Z., Mwonjoria, J.K., Mburu, D.N., and Ngugi, M.P. (2016a). Antipyretic potential of methanolic stem bark extracts of *Harrisonia abyssinica* Oliv. and *Landolphia buchananii* (Hallier F.) Stapf. in Wistar rats. Journal of Applied Pharmacy, 8, 3. https://doi.org/10.21065/1920-4159.1000227.

53. Nthiga, P.M., Kamau, J.K., Safari, V.Z., Ngugi, M.P., and Mburu, D.N. (2016b). Antinociceptive activity of methanolic stem bark extracts of *Harrisonia abyssinica* Oliv and *Landolphia buchananii* (Hallier F.) Stapf in a mouse model. Journal of Pain and Relief, 5(4), 253. https://doi.org/10.4172/2167-0846.1000253.

54. Ntore, S., Theeten, F., Nkengurutse, J., Ndayishimiye, J., and Sosef, M.S.M. (2022). The vascular plant diversity of Burundi. Plant Ecology and Evolution, 155, 404–416. https://doi.org/10.5091/plecevo.85017.

55. Oladeji, O.S., Oluyori, A.P., and Dada, A.O. (2024). *Landolphia* (P. Beauv.) genus: Ethnobotanical, phytochemical and pharmacological studies. Saudi Journal of Biological Sciences, 31, 103988. https://doi.org/10.1016/j.sjbs.2024.103988.

56. Ollerton, J., Liede-Schumann, S., Endress, M.E., Meve, U., Rech A.R., Shuttleworth, A., Keller H.A., Fishbein, M., Alvarado-Cárdenas, L.O., Amorim, F.W., Bernhardt, P., Celep, F., Chirango, Y., Chiriboga-Arroyo, F., Civeyre L., Cocucci, A., Cranmer L., da Silva-Batista, I.C., de Jager, L., Deprá, M.S., Domingos-Melo, A., Dvorsky, C., Agostini, K., Freitas, L., Gaglianone, M.C., Galetto, L., Gilbert, M., González-Ramírez, I., Gorostiague, P., Goyder, D., Hachuy-Filho, L., Heiduk, A., Howard, A., Ionta, G., Islas-Hernández, S.C., Johnson, S.D., Joubert, L., Kaiser-Bunbury, C.N., Kephart, S., Kidyoo, A., Koptur, S., Koschnitzke, C., Lamborn, E., Livshultz, T., Machado, I.C., Marino, S., Mema, L., Mochizuki, K., Morellato, L.P.C., Mrisha, C.K., Muiruri, E.W., Nakahama, N., Nascimento, V.T., Nuttman, C., Oliveira, P.E., Peter, C.I., Punekar, S., Rafferty, N., Rapini, A., Ren, Z.-Z., Rodríguez-Flores, C.I., Rosero, L., Sakai, S., Sazima, M., Steenhuisen, S.-L., Tan, C.-W., Torres, C., Trøjelsgaard, K., Ushimaru, A., Vieira, M.F., Wiemer, A.P., Yamashiro, T., Nadia, T., Queiroz, J., and Quirino, Z. (2019). The diversity and evolution of pollination systems in large plant clades: Apocynaceae as a case study. Annals of Botany, 123(2), 311–325. https://doi.org/10.1093/aob/mcy127.

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.7 No. 3 (2026): September 2026 Issue
https://doi.org/10.51168/3h8hj513
Review Article

57. Omino, E.A. (2008). Flora of tropical East Africa: Apocynaceae (Part 1). Balkema, Rotterdam.
58. Patil, R.H., Patil, M.P., and Maheshwari, V.L. (2023). Morphology, ecology, taxonomy, diversity, habitat and geographical distribution of the Apocynaceae Family. In: Patil, R.H., Patil, M.P., and Maheshwari, V.L. (editors). Apocynaceae plants: Ethnobotany, phytochemistry, bioactivity and biotechnological advances. Springer, Singapore, pp. 1-11. https://doi.org/10.1007/978-981-99-5406-3_1.
59. Palgrave, C.K. (2002). Coates Palgrave trees of southern Africa. C Struik Publishers, Cape Town.
60. Phiri, P.S.M. (2005). A checklist of Zambian vascular plants. Southern African Botanical Diversity Network Report No. 32, SABONET, Pretoria.
61. Quattrocchi, U. (2012). CRC world dictionary of medicinal and poisonous plants: common names, scientific names, eponyms, synonyms, and etymology. CRC Press, Boca Raton.
62. Ross, K.R. (2026). John Buchanan of Zomba: Disgraced missionary or pioneer of ecotheology? Verbum et Ecclesia, 47(1), a3693. https://doi.org/10.4102/ve.v47i1.3693.
63. Ruffo, C.K., Birnie, A., and Tengnäs, B. (2002). Edible wild plants of Tanzania. Technical Handbook No 27. Regional Land Management Unit, Nairobi.
64. Sakamoto, K., Hitomi, T., Kikuchi, Y., and Ohmori, R. (2025). Is children's intake of wild edible food species in southeast Tanzania related to diarrhea or constipation? Journal of International Development Studies, 34(2), 161-184. https://doi.org/10.32204/jids.34.2_161.
65. Schlage, C.H., Mabula, C., Mahunnah, R.L.A., and Heinrich, M. (2000). Medicinal plants of Washambaa (Tanzania): Documentation and ethnopharmacological evaluation. Plant Biology, 2, 82–92. https://doi.org/10.1055/s-2000-296.
66. Schmidt, E., Lotter, M., and McCleland, W. (2017). Trees and shrubs of Mpumalanga and Kruger National Park. Jacana Media, Johannesburg.
67. Senbeta, F., Gole, T.W., Denich, M., and Kellbessa, E. (2013). Diversity of useful plants in the coffee forests of Ethiopia. Ethnobotany Research and Applications, 11, 49-69.
68. Sennblad, B., and Bremer, B. (1996). The familial and subfamilial relationships of Apocynaceae and Asclepiadaceae evaluated with rbcL data. Plant Systematics and Evolution, 202, 153–175. https://doi.org/10.1007/BF00983380.
69. Shangali, C.F., Zilihona, I.J.E., Mwang'ingo, P.L.P., and Nummelin, M. (2008). Use of medicinal plants in the eastern arc mountains with special reference to the Hehe ethnic group in the Udzungwa mountains, Tanzania. Journal of East African Natural History, 97(2), 225-254. https://doi.org/10.2982/0012-8317-97.2.225.
70. Simpson, M.G. (2019). Plant systematics. Elsevier-Academic Press, San Diego.
71. Tembo, A. (2013). Rubber production in Northern Rhodesia during the Second World War, 1942-1946. African Economic History, 41, 223-255. https://doi.org/10.3368/aeh.41.1.223.
72. Thulin, M. (2006). Flora of Somalia 3: The Royal Botanic Gardens, Kew, Richmond.
73. Timberlake, J., Darbyshire, I., Cheek, M., Banze, A., Fijamo, V., Massunde, J., Chipanga, H., and Muassinar, D. (2016). Plant conservation in communities on the Chimanimani footslopes, Mozambique. Report produced under the Darwin Initiative Award 2380. Royal Botanic Gardens, Kew, Richmond.
74. Van Wyk, B.-E., and Gericke, N. (2018). People's plants: A guide to useful plants of southern Africa. Briza Publications, Pretoria.
75. Van Wyk, B.-E., and Wink, M. (2015). Phytomedicines, herbal drugs and plant poisons. Briza Publications, Pretoria.
76. Van Wyk, B.-E., Van Heerden, F., and Van Oudtshoorn, B. (2005). Poisonous plants of South Africa. Briza Publications, Pretoria.
77. Wanga, L., and Nyamboki, D.K. (2023). Medicinal plants used in the management of

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol.7 No. 3 (2026): September 2026 Issue
https://doi.org/10.51168/3h8hj513
Review Article

skin disorders in Kenya: A review. Pharmacognosy Reviews, 17(33), 69-103. https://doi.org/10.5530/097627870276.

78. Wild, H., Mavi, S., and Biegel, S.M. (1972). A Southern Rhodesia botanical dictionary of native and English plant names. Government Printer, Salisbury.

79. Wink, M., and Van Wyk, B.-E. (2008). Mind-altering and poisonous plants of the world: An illustrated scientific guide. Briza Publications, Pretoria.

PUBLISHER DETAILS:

Student's Journal of Health Research (SJHR)
(ISSN 2709-9997) Online
(ISSN 3006-1059) Print
Category: Non-Governmental & Non-profit Organization
Email: studentsjournal2020@gmail.com
WhatsApp: +256 775 434 261
Location: Scholar's Summit Nakigalala, P. O. Box 701432, Entebbe Uganda, East Africa