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Review Article

Medicinal uses and ethnopharmacological properties of *Combretum woodii* Dümmer: A narrative review.

Alfred Maroyi
Department of Biotechnology and Biological Sciences, University of Fort Hare, Private Bag X1314, Alice 5700, South Africa.

Abstract
Combretum woodii Dümmer is a deciduous climber, shrub, or tree that has potential as a medicinal plant in Eswatini, Mozambique, and South Africa. This study aimed to review the medicinal uses and ethnopharmacological properties of *C. woodii*. A systematic review of the scientific literature on the therapeutic potential of C. woodii was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The literature search was conducted using databases PubMed, Web of Science, ScienceDirect, Google Scholar, SpringerLink, Scopus, and SciELO, as well as pre-electronic literature sources such as book chapters, books, and other scientific publications obtained from the university library. Results from this systematic review revealed that *C. woodii* is used as a purgative and as traditional medicine for gastrointestinal problems, female infertility, respiratory infections, sexually transmitted infections, sores, and wounds. The phytochemical assessment of *C. woodii* showed that the species contains 2',3',4-trihydroxyl-3,5,4'-trimethoxyl bibenzyl (combretastatin B5), cycloart-24-en-3β-ol, gardenolic acid A, §-glutinol, lupeol, and methyl gardenolate A. The crude extracts of *C. woodii* leaves exhibited antibacterial, antifungal, anticoccidial, anti-inflammatory, and antioxidant activities. This traditional ecological knowledge about *C. woodii* accumulated from the past to the present is extremely important and of great value in the assessment of the therapeutic potential and ethnopharmacological value of the species. Detailed studies on *C. woodii*, focusing on phytochemical, pharmacological, and toxicological evaluations, as well as *in vivo,* pre-clinical, and clinical studies, are recommended.

Keywords: *bush willow family, Combretaceae, Combretum woodii, materia medica, traditional ecological knowledge*
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Corresponding Author: *Alfred Maroyi*
Email: *amaroyi@ufh.ac.za*
Department of Biotechnology and Biological Sciences, University of Fort Hare, Private Bag X1314, Alice 5700, South Africa.

Introduction
Combretum woodii Dümmer (Figure 1) is a deciduous climber, shrub, or tree that belongs to the Combretaceae family. This family is commonly referred to as the white mangrove, Indian almond, or bush willow family. *Combretum* woodii belongs to the section Angustimarginata Engl. & Diels of the subgenus *Combretum* Loefling, a natural taxon of six closely related species restricted to Botswana, Eswatini, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe (Stace, 1969; Tilney, 2002; Jordaan et al., 2011; Hahn, 2012). The closely related species that belong to the section Angustimarginata include *C. caffrum* (Eckl. & Zeyh.) Kuntze, *C. erythrophyllum* (Burch.) Sond., *C. kraussii* Hochst., *C. nelsonii* Dümmer, *C. vendae* A.E.van Wyk and *C. woodii* Dümmer (Van Wyk, 1984; Jordaan et al., 2011; Hahn, 2012). The section Angustimarginata is characterised by inconspicuous scales on leaves, inflorescence, and fruits often obscured by the indumentum and/or glutinous secretions (Stace, 1969; Van Wyk, 1984; Maurin et al., 2010). The scales consist of eight to 16 cells, which are more abundant on the upper surface of the leaf blade (Jordaan et al., 2011). The species belonging to this section have bark that is smooth or flaking in small papery pieces, young leaves that are white or cream without chlorophyll, reddish calyx lobes, and mature fruit usually partially or completely tinted pink to dark red (Van Wyk, 1984; Coombes and Rogers, 2002). Research by Boon et al. (2020) showed that *C. woodii* is often confused with distant members of the genus, such as *C. eugeneanum* R.G.C.Boon, Jordaan & A.E.Van Wyk, a species belonging to the section Ciliatipetala Engler & Diels and confined to the Maputaland Centre of Endemism in northeastern KwaZulu-Natal in South Africa
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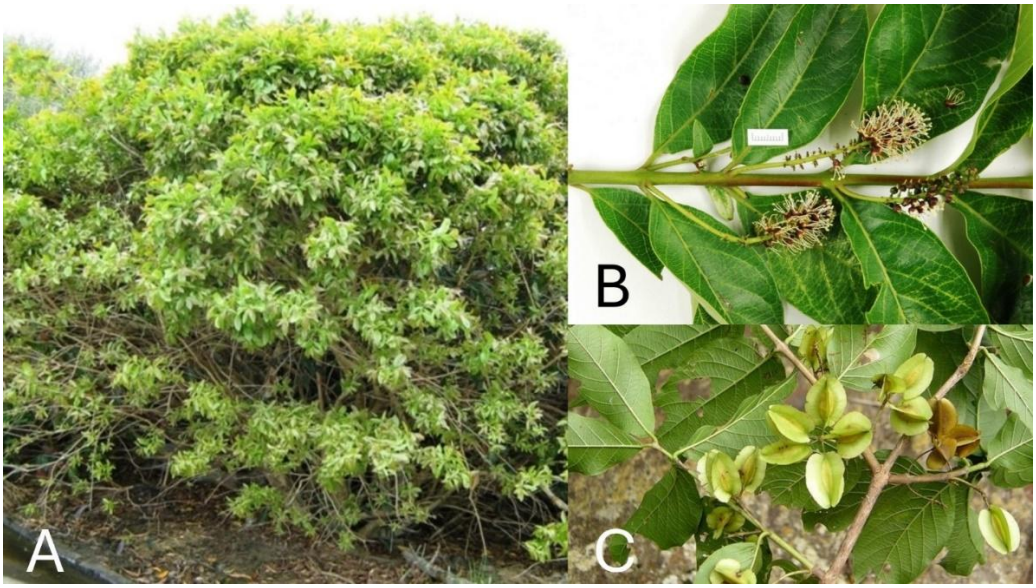

Figure 1. *Combretum woodii*: A: entire plant showing plant habit, B: branch showing leaves and flowers, and C: branch showing leaves and fruits (photos: A and B (MD Wilcox) and C (L Loffler)

Several *Combretum* species are widely used as sources of traditional medicines in tropical Africa (Bhat and Jacobs, 1995; Arnold et al., 2002; Mhlongo and Van Wyk, 2019; Silén et al., 2023; Maroyi, 2025a-e, 2026), and these species include *C. caffrum* (Maroyi, 2025f), *C. erythrophyllum* (Maroyi, 2025g), *C. kraussii* (Maroyi, 2025h), *C. vendae* (Maroyi, 2026b), and *C. woodii,* which belong to the section Angustimarginata. These species are used as traditional medicines against diseases and ailments such as infertility, respiratory infections, sexually transmitted diseases, stomach ailments, gastro-intestinal problems, sores, and wounds (Van Wyk et al., 2013). *Combretum* species are important sources of phytochemical compounds such as combretastatins and combretastatin derivatives, which have demonstrated anticancer activities (Griggs et al., 2001; Hinnen and Eskens, 2007). Similarly, combretastatin A-4 analogues AVE8062 and CA-4P have been approved by the European Medicines Agency (EMA) and US Food and Drug Administration (FDA) to treat gliomas, anaplastic thyroid cancer (ATC), neuroendocrine tumors, ovarian cancer, and gastro-enteropancreatic neuroendocrine tumors (Patel et al., 2024). Only a small number of ethnopharmacological studies focusing on *C. woodii* have been published, and none have evaluated its ethnomedicinal applications within its distributional range. Several researchers argue that since *C. woodii* resembles *C. erythrophyllum* and *C. kraussii*, and at times it is difficult to separate these species, especially when growing side by side within the same habitat (Pooley, 1993; Palgrave, 2002; Glen, 2005). Therefore, in traditional medicine, local people possibly use these species interchangeably (Eloff et al., 2005a). This is mainly because for the greater part of the 20th century, *C. woodii* has been considered to be conspecific with either *C. erythrophyllum* or *C. kraussii* (Van Wyk, 1984; Jordaan et al., 2011; Boon et al., 2020). Therefore, ethnobotanical researchers encountered difficulties in gaining access to information about *C. woodii* since it was regarded as a synonym of either *C. erythrophyllum* or *C. kraussii*. But Jordaan et al. (2011) and Van Wyk (1984) considered *C. woodii* to be a distinct species, and recent results from molecular studies confirmed recognition of *C. erythrophyllum, C. kraussii,* and *C. woodii* as separate and distinct species (Maurin et al., 2010). Recognition of *C. woodii* as a distinct species towards the end of the 20th century saw a considerable increase in the number of researchers showing interest in the botany and ethnopharmacological properties of the species. This diversification of research strategies, views, methods, and techniques involving *C. woodii* is important as it yielded useful phytochemical compounds which demonstrated some pharmacological properties (Coombes and Rogers, 2002; Eloff et al., 2005a). The present review evaluated medicinal uses, traditional ecological knowledge, and

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ethnopharmacological properties of *C. woodii* by means of a synthesis of information in the literature.

Materials and methods

Eligibility criteria

Over 40 multidisciplinary scientific publications (Figure 2), which included books, book chapters, and scientific journals, were identified using the Preferred Reporting Items for systematic reviews and meta-analyses (PRISMA) guidelines. Literature sources excluded from this review are those articles that are partially accessed, that is, accessed as abstracts only, and also published or unpublished ethnopharmacological surveys lacking information on medicinal uses and ethnopharmacological properties of *C. woodii*. The scientific publications consulted spanned a period of over 60 years, a long period to capture the medicinal uses and ethnopharmacological properties of the species.

Information sources

Literature sources were obtained from the university library and scientific databases such as PubMed (https://pubmed.ncbi.nlm.nih.gov/), Web of Science (https://www.webofknowledge.com), Scopus (http://www.scopus.com/), Google Scholar (https://scholar.google.com/), SciELO (https://search.scielo.org/), ScienceDirect (https://www.sciencedirect.com/search), and SpringerLink (https://link.springer.com/) were surveyed for the medicinal uses, phytochemical, and in vitro biological activities of *C. woodii*.

Search strategy

The literature search was conducted from September 2025 to March 2026 using the following keywords: "*Combretum woodii*", "biological activities of *Combretum woodii*", "pharmacological properties of *Combretum woodii*", "ethnobotany of *Combretum woodii*", "medicinal uses of *Combretum woodii*", "phytochemistry of *Combretum woodii*", and "traditional uses of *Combretum woodii*".

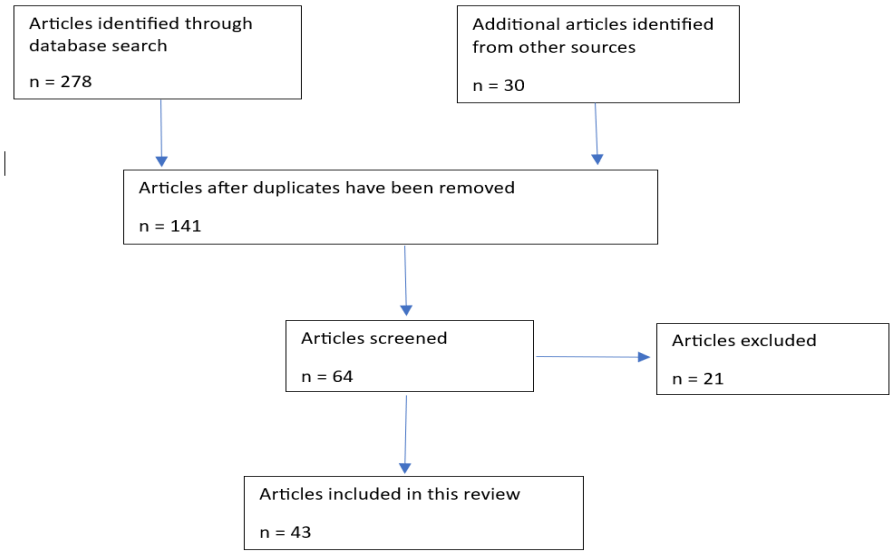

Figure 2: Flow diagram showing identification and screening of articles used in this review.

Results and discussion

Taxonomy and morphological description of *Combretum woodii*

The genus *Combretum* Loefling consists of approximately 276 species with a pantropical distribution, mainly in tropical Asia and Africa, but absent in the Pacific Islands and most of Australia (Stace, 2002, 2007; Boon et al., 2020). About 140 *Combretum* species have been recorded in tropical Africa, and approximately 20 species are endemic to Madagascar (Neuwinger, 2000; Quattrocchi, 2012). Therefore, the highest number of *Combretum* species occurs in tropical Africa, with the centre of diversity of the genus on the African continent (Gere et al., 2015). The genus *Combretum* comprises trees, shrubs, and lianas characterized by leaves that are opposite, whorled, or rarely

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alternate, with entire margins, lacking stipules or having very small stipules, and with persistent petioles that often form hooked spines (Leistner, 2000). The flowers are bisexual, actinomorphic, with an inferior ovary and winged fruits, or rarely an unwinged nut (Boon et al., 2020). The genus name '*Combretum*' is of classical origin, as the name was first used by the Roman naturalist, natural philosopher, naval and military commander Gaius Plinius Secundus, known in English as Pliny (23 – 79 AD), who used it in reference to an unknown plant (Palmer and Pitman, 1972; Venter and Venter, 2015; Schmidt et al., 2017). The name was later reused by the Swedish botanist Pehr Löfling (31 January 1729 – 22 February 1756) for the *Combretum* genus (Palmer and Pitman, 1972; Venter and Venter, 2015; Schmidt et al., 2017). The species name "*woodii*" is in honour of John Medley Wood (1827-1915), a famous Natal botanist and pioneer of South African botany (Palmer and Pitman, 1972; Quattrocchi, 2012; Schmidt et al., 2017). The English common names of *W. woodii* include "bastard forest bush willow", "false forest bush willow", "large-leaved forest bush willow", and "Wood's combretum" (Palmer and Pitman, 1972; Pooley, 1993; Glen, 2005; Quattrocchi, 2012; Venter and Venter, 2015; Schmidt et al., 2017). There are ample DNA and morphological differences to separate *C. woodii* from other related *Combretum* species, which include *C. caffrum, C. erythrophyllum, C. eugeneanum, C. kraussii*, *C. nelsonii,* and *C. vendae* (Maurin et al., 2010). Major differences of these species in habitat, geographical distribution, and morphological characters are shown in Table 1.

Table 1: Habitat, geographical distribution, and morphological characters of *Combretum* species (after Jordaan et al., 2011; Boon et al., 2020)

Species	Habit	Habitat and geographical distribution	Morphological characters
C. woodii	Climber, shrub, or tree	Recorded in Eswatini, Mozambique, and South Africa in bushveld, rocky slopes, forests, forest margins, woodland, hill slopes, mountain kloofs, and rocky ridges	Grey bark, elliptic to oblong-elliptic leaves, creamy white flowers, and four-winged fruits
C. vendae	Shrub or tree	Endemic to the Limpopo province in South Africa in the savanna in acidic, clay, rocky, and sandy soils	Grey bark, broadly elliptic to obovate leaves, yellow to cream flowers, and four-winged fruits
C. nelsonii	Shrub or tree	Endemic to the Limpopo and Mpumalanga provinces in South Africa, in bushveld and woodland on rocky slopes on sandy soils	Medium-grey bark, elliptic to obovate-elliptic leaves, greenish yellow flowers, and four-winged fruits
C. kraussii	Shrub or tree	Recorded in Eswatini, Mozambique, and South Africa in bushveld, rocky slopes, forests, forest margins, woodland, hill slopes, mountain kloofs, and rocky ridges	Grey bark, elliptic to obovate-elliptic leaves, creamy white flowers, and four-winged fruits
C. eugeneanum	Climber or scrambling shrub	Endemic to KwaZulu-Natal province in South Africa, recorded in sandy bushveld and forest	Grey bark, elliptic to oblong leaves, creamy white to greenish white flowers, and four-winged fruits
C. erythrophyllum	Shrub or tree	Recorded in Botswana, Eswatini, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe along river banks and watercourses, woodland, and wooded grassland	Pale grey bark, elliptic to oblong-elliptic leaves, cream to pale yellow flowers, and four-winged fruits
C. caffrum	Shrub or tree	Endemic to the Eastern Cape province in South Africa, along river and stream banks, watercourses in grasslands, thickets, and forests	Pale grey to greyish brown bark, narrowly elliptic or lanceolate leaves, greenish flowers, and four-winged fruits

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Review Article

Combretum woodii is a deciduous climber, shrub, or tree growing to 12 metres in height with a fairly dense and rounded crown (Palmer and Pitman, 1972; Germishuizen and Meyer, 2003). *Combretum woodii* is multi-stemmed, occasionally single-stemmed, many-branched, and the stems are relatively long, bare, crooked (Van Wyk, 2008). The bark is smooth, later flaking in curled strips or fairly large rectangular blocks or sheets, and patches on larger stems reveal pale brown under-bark, and branches are light grey to light brown, hairless to sparsely hairy. The leaves are simple, opposite or alternate, borne on smooth or hairy stalks. The leaves are elliptic to obovate in shape, bluntly or sharply pointed, usually narrowed to the base, glossy, above dark green and hairless with small pustules or blisters, below paler with blisters, and thickly covered with scales, smooth or softly hairy, with the midrib and side veins raised. The leaves tend to be widest about the middle or just below it, instead of above the middle as in *C. kraussii* (Palgrave, 2002). The leaves on flowering shoots are often whitish with waxy margins and not rolled under, and the blade is often curved upwards. The flowers which appear in October to November are small, whitish to creamy-yellow in colour, borne in slender spikes in the axils of the leaves. The fruits are winged, smooth, shiny, oval in shape, yellowish-green in colour, flushed with red when young, and reddish-brown with pale yellow-brown when ripe, while the fruits of *C. kraussii* are roundish (Palmer and Pitman, 1972). *Combretum woodii* has been recorded in Eswatini, Mozambique, and KwaZulu-Natal, Limpopo, and Mpumalanga provinces in South Africa in warm and well-watered areas at an altitude ranging from 45 m to 1370 m above sea level (Palmer and Pitman, 1972; Germishuizen and Meyer, 2003; Jordaan et al., 2011; Schmidt et al., 2017). *Combretum woodii* has been recorded in forest, bushveld, kloofs, sand forest, riverine thickets, valley bush, forested gorges on steep, rocky slopes (Schmidt et al., 2017).

Medicinal uses of *Combretum woodii*

The bark, leaf, or root decoctions of *C. woodii* are taken orally as purgatives or traditional medicine for gastrointestinal problems, infertility in women, respiratory infections, sexually transmitted infections, sores, and wounds (Table 2). The gum powder of *C. woodii* is applied topically for sores and wounds (Van Wyk et al., 2013; Venter and Venter, 2015). In South Africa, *Combretum* species such as *C. apiculatum*, *C. caffrum*, *C. collinum*, *C. erythrophyllum*, *C. hereroense*, *C. imberbe*, *C. kraussii*, *C. molle*, *C. paniculatum,* and *C. zeyheri* are used for coughs, infertility, venereal diseases, stomach problems, sores, and wounds (Watt and Breyer-Brandwijk, 1962; Hutchings et al., 1996; Van Wyk et al., 2013). Literature studies show that traditional ecological knowledge is not static but evolves; therefore, it is necessary to intensify the ethnomedicinal and ethnopharmacological evaluation of *C. woodii*. Research by Bussmann et al. (2007) showed that the local pharmacopoeia changes over time as local communities experiment with new medicinal plants in their search for new and effective remedies for different ailments and diseases.

Table 2: Medicinal uses of *Combretum woodii*

Medicinal use	Part used	Reference
Gastrointestinal problems (abdominal pain, diarrhoea, dysentery, and stomach pains)	Leaf infusion taken orally	Hutchings et al., 1996; Eloff et al., 2005a; Van Wyk et al., 2013; Ahmed et al., 2014
Infertility in women	Bark decoction taken orally	Hutchings et al., 1996; Van Wyk et al., 2013
Purgative	Root decoction taken orally.	Watt and Breyer-Brandwijk, 1962; Palmer and Pitman, 1972; Venter and Venter, 2015
Respiratory infections (colds, coughs, and tuberculosis)	Leaf decoction taken orally	Hutchings et al., 1996; Van Wyk et al., 2013; Schmidt et al., 2017
Sexually transmitted infections (used as prophylaxis and against venereal diseases)	Bark and root decoction taken orally.	Hutchings et al., 1996; Eloff et al., 2005a; Van Wyk et al., 2013; Schmidt et al., 2017; Ahmed et al., 2014
Sores and wounds	Gum powder applied topically	Van Wyk et al., 2013; Venter and Venter, 2015

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Review Article

Phytochemistry and pharmacological properties of *Combretum woodii*

Qualitative and quantitative phytochemical analyses of *C. woodii* leaves revealed the presence of 2',3',4-trihydroxyl-3,5,4'-trimethoxyl bibenzyl (combretastatin B5), cycloart-24-en-3β-ol, gardenolic acid A, §-glutinol, lupeol, and methyl gardenolate A (Table 3). The crude extracts of *C. woodii* leaves exhibited antibacterial, antifungal, anticoccidial, anti-inflammatory, and antioxidant activities, supporting some of its traditional medicinal uses.

Table 3: Phytochemical composition of *Combretum woodii* leaves

Phytochemical compound	Formula	Reference
2',3',4-Trihydroxyl-3,5,4'-trimethoxyl bibenzyl (combretastatin B5)	$C_{18}H_{22}O_6$	Eloff et al., 2005b; Silén et al., 2023
Cycloart-24-en-3β-ol	$C_{30}H_{50}O_2$	Coombes and Rogers, 2002
Gardenolic acid A	$C_{32}H_{48}O_5$	Coombes and Rogers, 2002
§-glutinol	$C_{32}H_{52}O_2$	Coombes and Rogers, 2002
Lupeol	$C_{30}H_{50}O$	Coombes and Rogers, 2002
Methyl gardenolate A	$C_{31}H_{48}O_4$	Coombes and Rogers, 2002

Antibacterial activities

Eloff (1999) evaluated the antibacterial activities of acetone extracts of *C. woodii* leaves against *Escherichia coli, Staphylococcus aureus, Enterococcus faecalis,* and *Pseudomonas aeruginosa* using the twofold serial dilution with gentamycin as a positive control. The extracts exhibited activities against the tested pathogens with minimum inhibitory concentration (MIC) values ranging from 0.4 mg/ml to 3.0 mg/ml (Eloff, 1999). Eloff et al. (2005a) evaluated the antibacterial activities of hexane, ethyl acetate, acetone, ethanol, methanol, and water extracts of *C. woodii* leaves against *Escherichia coli, Staphylococcus aureus, Enterococcus faecalis,* and *Pseudomonas aeruginosa* using the serial dilution microplate bioassay with ampicillin and chloramphenicol as positive controls. The extracts demonstrated activities against the tested pathogens, exhibiting MIC values ranging from 0.04 mg/ml to >2.5 mg/ml (Eloff et al., 2005a). Eloff et al. (2005b) evaluated the antibacterial activities of acetone, hexane, chloroform, butanol, methanol, and water extracts of *C. woodii* leaves and the phytochemical compound combretastatin B5 isolated from the species against *Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli,* and *Enterococcus faecalis* using the serial dilution microplate assay with ampicillin and chloramphenicol as positive controls. The extracts and the phytochemical compound demonstrated activities against the tested pathogens exhibiting MIC values ranging from 0.1 mg/ml to >5.0 mg/ml and 16.0 µmg/ml to >250.0 µmg/ml, respectively (Eloff et al., 2005b). Ahmed et al. (2014) evaluated the antibacterial activities of water, dichloromethane, butanol, and ethyl acetate extracts of *C. woodii* leaves against *Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa,* and *Enterococcus faecalis* using the microdilution method with gentamicin as a positive control. The extracts demonstrated activities against the tested pathogens exhibiting MIC values ranging from 39.0 µg/ml to 625.0 µg/ml (Ahmed et al., 2014). Anokwuru et al. (2021, 2022) evaluated the antibacterial activities of the methanol extract of *C. woodii* leaves against *Staphylococcus aureus, Staphylococcus epidermidis, Bacillus cereus, Klebsiella pneumoniae, Enterococcus faecalis, Pseudomonas aeruginosa, Escherichia coli, Salmonella typhimurium,* and *Shigella sonnei* using the microdilution assay with ciprofloxacin as a positive control. The extracts demonstrated activities against the tested pathogens exhibiting MIC values ranging from 0.5 mg/ml to 3.0 mg/ml (Anokwuru et al., 2021, 2022).

Antifungal activities

Masoko et al. (2007) evaluated the antifungal activities of hexane, acetone, methanol, and dichloromethane extracts of *C. woodii* leaves against *Candida albicans, Aspergillus fumigatus, Cryptococcus neoformans, Sporothrix schenckii,* and *Microsporum canis* using the microdilution assay with amphotericin B as a positive control. The extracts exhibited activities against the tested pathogens with MIC values ranging from 0.02 mg/ml to 2.5 mg/ml (Masoko et al., 2007). Ahmed et al. (2014) evaluated the antifungal activities of water, dichloromethane, butanol, and ethyl acetate extracts of *C. woodii* leaves against *Candida albicans, Aspergillus fumigatus,* and *Cryptococcus neoformans* using the microdilution method with amphotericin B as a positive control. The extracts demonstrated activities against the tested pathogens

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Review Article

exhibiting MIC values ranging from 19.0 µg/ml to 625.0 µg/ml (Ahmed et al., 2014).

Anticoccidial activities

Naidoo et al. (2008) evaluated the anticoccidial activities of water extracts of *C. woodii leaves in vivo* experiments involving artificially induced Eimeria infections in poultry with toltrazuril as the positive control. Orally administered extract at a concentration of 160.0 mg/kg body weight was toxic to the birds (Naidoo et al., 2008).

Anti-inflammatory activities

McGaw et al. (2001) evaluated the anti-inflammatory activities of acetone and ethyl acetate extracts of *C. woodii* leaves in an *in vitro* assay for cyclooxygenase inhibitors with indomethacin as a positive control. The extracts exhibited activities by showing inhibition ranging from 51.0% to 71.0% (McGaw et al., 2001). Ahmed et al. (2014) evaluated the anti-inflammatory activities of the crude extracts of *C. woodii* leaves by determining the inhibition of 15-lipoxygenase (15-LOX) using soybean lipoxygenase type 1-B. The extract demonstrated lipoxygenase inhibitory capacity by exhibiting a median lethal concentration (LC50) value of 14.4 µg/ml (Ahmed et al., 2014).

Antioxidant activities

Masoko and Eloff (2007) evaluated the antioxidant activities of acetone and methanol extracts of *C. woodii* leaves using 2,2-diphenyl-1-picryl hydrazyl (DPPH) free radical scavenging assay. The extract exhibited strong antioxidant activities (Masoko and Eloff, 2007). Ahmed et al. (2014) evaluated the antioxidant activities of water, dichloromethane, butanol, and ethyl acetate extracts of *C. woodii* leaves using the ferric reducing antioxidant power (FRAP), 2,2'-azino-bis (3-ethylbenzothiazoline)-6-sulphonic acid (ABTS), and DPPH free radical scavenging methods with trolox and ascorbic acid as positive controls. The extracts demonstrated ferric reducing antioxidant power activities and half maximal effective concentration (EC50) values which ranged from 0.3 µg/ml to 9.4 µg/ml for ABTS and DPPH (Ahmed et al., 2014).

Conclusion

Assessment of the literature has illustrated the medicinal value, phytochemical, and biological activities of *C. woodii*. While the species has a long history of human association and use, it has not received wide acknowledgment for its various medicinal uses. Documentation of traditional knowledge, cultural values, and ethnopharmacological properties of *C. woodii* is required, as these parameters may help in the determination of future management strategies of the species. Therefore, future research on *C. woodii* should focus on detailed phytochemical, pharmacological, and toxicological evaluations of the crude extracts as well as phytochemical compounds isolated from the species. The growing interest in medicinal plants, including *C. woodii* as sources of traditional remedies and complementary treatments, underscores the importance of ethnopharmacological research, especially studies highlighting the therapeutic potential of such species. *Combretum woodii* has great potential as a medicinal plant characterized by several ethnomedicinal applications and ethnopharmacological properties. To realize the full potential of *C. woodii*, future studies should explore additional active phytochemical compounds and their pharmacological properties using various *in vitro* and *in vivo* models and clinical validation.

Limitations

Access and identification of literature sources focusing on medicinal uses, traditional ecological knowledge, and ethnopharmacological properties of *C. woodii* were a major challenge. Information provided in this study is based on available scientific sources identified through a systematic literature review, which is often susceptible to publication, analysis, and interpretation bias. In order to minimize these forms of bias and subjective decisions, credible literature sources associated with quality experimental techniques were selected and used in this study.

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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.

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Review Article

Competing interests

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

List of abbreviations

15-LOX - 15-lipoxygenase
ABTS - 2,2'-azino-bis (3-ethylbenzothiazoline)-6-sulphonic acid
ATC - Anaplastic Thyroid Cancer
DPPH - 2,2-diphenyl-1-picryl hydrazyl
EC50 - Half Maximal Effective Concentration
EMA - European Medicines Agency
FDA - Food and Drug Administration
FRAP - Ferric Reducing Antioxidant Power
LC50 - Median Lethal Concentration
MIC - Minimum Inhibition Concentration
PRISMA - Preferred Reporting Items for Systematic Reviews and Meta-analyses

Availability of data, code, and other materials

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

Author biography

Alfred Maroyi is a Professor of Botany in the Department of Biotechnology and Biological Sciences, University of Fort Hare

References

1. Ahmed, A.S., McGaw, L.J., Elgorashi, E.E., Naidoo, V., and Eloff, J.N. (2014). Polarity of extracts and fractions of four Combretum (Combretaceae) species used to treat infections and gastrointestinal disorders in southern African traditional medicine has a major effect on different relevant in vitro activities. Journal of Ethnopharmacology,154, 339–350. http://dx.doi.org/10.1016/j.jep.2014.03.030
2. Anokwuru, C.P., Sandasi, M., Chen, W., Van Vuuren, S., Elisha, I.L., Combrinck, S., and Viljoen, A.M. (2021). Investigating antimicrobial compounds in South African Combretaceae species using a biochemometric approach. Journal of Ethnopharmacology, 269, 113681. https://doi.org/10.1016/j.jep.2020.113681
3. Anokwuru, C.P., Chen, W., Van Vuuren, S., Combrinck, S., and Viljoen, A.M. (2022). Bioautography-guided HPTLC–MS as a rapid hyphenated technique for the identification of antimicrobial compounds from selected South African Combretaceae species. Phytochemical Analysis, 33(8):1177-1189. https://doi.org/10.1002/pca.3167
4. Arnold, T.H., Prentice, C.A., Hawker, L.C., Snyman, E.E., Tomalin, M., Crouch, N.R., and Pottas-Bircher, C. (2002). Medicinal and magical plants of southern Africa: An annotated checklist. National Botanical Institute, Strelitzia 13, Pretoria.
5. Bhat, R.B. and Jacobs, T.V. (1995). Traditional herbal medicine in Transkei. Journal of Ethnopharmacology, 48, 7–12. https://doi.org/10.1016/0378-8741(95)01276-J
6. Boon, R.G.C., Jordaan, M., Van Wyk, A.E. (2020). A new species of *Combretum* sect. Ciliatipetala (Combretaceae) from South Africa. Phytotaxa, 434(1), 1-12. https://doi.org/10.11646/phytotaxa.434.1.1
7. Bussmann, R.W., Sharon, D., Vandebroek, I., Jones, A., and Revene, Z. (2007). Health for sale: The medicinal plant markets in Trujillo and Chiclayo, northern Peru. Journal of Ethnobiology and Ethnomedicine, 3, 37. https://doi.org/10.1186/1746-4269-3-37
8. Coombes, P.H., and Rogers, C.B. (2002). Methyl gardenolate A: A novel cycloartenoid ester from the leaves of *Combretum woodii* (Combretaceae). Natural Product Letters, 16(5), 301-304. https://doi.org/10.1080/10575630290020587
9. Eloff, J.N. (1999). The antibacterial activity of 27 Southern African members of the Combretaceae. South African Journal of Science, 95, 148–152
10. Eloff, J.N., Famakin, J.O., and Katerere, D.R.P. (2005a). *Combretum woodii* (Combretaceae) leaf extracts have high activity against Gram-negative and Gram-positive bacteria. African Journal of Biotechnology, 4, 1161–1166. http://dx.doi.org/10.4314/ajb.v4i10.71275
11. Eloff, J.N., Famakin, J.O., and Katerere, D.R.P. (2005b). Isolation of an antibacterial stilbene from *Combretum woodii* (Combretaceae) leaves. African Journal of Biotechnology, 4, 1166–1171.
12. Gere, J., Yessoufou, K., Daru, B.H., Maurin, O., and Van Der Bank, M. (2015). The

Student's Journal of Health Research Africa
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Vol.7 No. 2 (2026): June 2026 Issue
https://doi.org/10.51168/sjhrafrica.v7i2.2752
Review Article

African continent is a likely origin of the family Combretaceae (Myrtales). A biogeographical view. Annual Research and Review in Biology, 8, 1–20. https://doi.org/10.9734/ARRB/2015/17476

13. Germishuizen, G., and Meyer, N.L. (2003). Plants of southern Africa: An annotated checklist. Strelitzia 14, National Botanical Institute, Pretoria.
14. Glen, H.F. (2005). *Combretum woodii* Dümmer. KwaZulu-Natal Herbarium. Available from: https://pza.sanbi.org/combretum-woodii, accessed on 12 April 2026.
15. Griggs, J., Metcalfe, J.C., and Hesketh, R. (2001). Targeting tumour vasculature: The development of combretastatin A4. The Lancet Oncology, 2, 82–87. http://dx.doi.org/10.1016/S1470-2045(00)00224-2
16. Hahn, N. (2012). A revision of the *Combretum vendae* complex. South African Journal of Botany, 78, 147–149. https://doi.org/10.1016/j.sajb.2011.06.005
17. Hinnen, P., and Eskens, F.A.L.M. (2007). Vascular disrupting agents in clinical development. British Journal of Cancer, 96(8), 1159-1165. http://dx.doi.org/10.1038/sj.bjc.6603694
18. Hutchings, A., Scott, A.H., Lewis, G., and Cunningham, A.B. (1996). Zulu medicinal plants: An inventory. University of Natal Press, Pietermaritzburg.
19. Jordaan, M., Van Wyk, A.E., and Maurin, O. (2011). A conspectus of *Combretum* (Combretaceae) in southern Africa, with taxonomic and nomenclatural notes on species and sections. Bothalia, 41(1), 135–160. https://doi.org/10.4102/abc.v41i1.36
20. Leistner, O.A. (2000). Seed plants of southern Africa: Families and genera. Strelitzia 10, National Botanical Institute, Pretoria.
21. Maroyi**,** A. **(**2025a**)**. Insights into the ethnopharmacological properties of *Combretum apiculatum* Sond. (family Combretaceae): Narrative review. Asian Journal of Pharmaceutical and Clinical Research, 18(7), 16-23. https://doi.org/10.22159/ajpcr.2025v18i7.54177
22. Maroyi, A. (2025b). Systematic review of the therapeutic potential of the hiccup-nut tree, *Combretum bracteosum* (Hochst.) Brandis. Student's Journal of Health Research Africa, 6, 9. https://doi.org/10.51168/sjhrafrica.v6i9.2003
23. Maroyi, A. (2025c). Cultural, forage, medicinal, and potential applications of *Combretum collinum* Fresen. (family Combretaceae). Ethnobotany Research and Applications, 31, 61. https://doi.org/10.32859/era.31.61.1-17
24. Maroyi, A. (2025d). *Combretum hereroense* Schinz (Combretaceae): Medicinal uses, phytochemistry, and pharmacological properties. Asian Journal of Pharmaceutical and Clinical Research, 18(10), 1-7. https://doi.org/10.22159/ajpcr.2025v18i10.54438
25. Maroyi, A. (2025e). The leadwood tree (*Combretum imberbe* Wawra, family Combretaceae): Medicinal uses and ethnopharmacological properties. Ethnobotany Research and Applications, 30, 50. http://dx.doi.org/10.32859/era.30.50.1-1433
26. Maroyi A. 2025f. Insights into the botany, medicinal, phytochemical, and pharmacological properties of *Combretum caffrum*. Journal of Medicinal Plants for Economic Development 9(1), a282. https://doi.org/10.4102/jomped.v9i1.282
27. Maroyi, A. (2025g). *Combretum erythrophyllum* (Burch.) Sond. (Combretaceae): Medicinal uses, phytochemistry, and pharmacological properties. Asian Journal of Plant Sciences, 24, 246-254. https://doi.org/10.3923/ajps.2025.246.254
28. Maroyi, A. (2025h). *Combretum kraussii* Hochst. (family Combretaceae): Evaluation of its medicinal uses, phytochemistry, and pharmacological properties. Pakistan Journal of Biological Sciences, 28, 559-566. https://doi.org/10.3923/pjbs.2025.559.566
29. Maroyi, A. (2026a). Medicinal uses and biological activities of knobbly bushwillow (*Combretum mossambicense*). Medicinal Plants International Journal of Phytomedicines and Related Industries, 18(2), 335-343.

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
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https://doi.org/10.51168/sjhrafrica.v7i2.2752
Review Article

https://doi.org/10.5958/0975-6892.2026.00035.3

30. Maroyi, A. (2026b). Evaluation of medicinal uses, phytochemistry, and biological activities of *Combretum vendae* A.E. Van Wyk (Combretaceae). Pakistan Journal of Biological Sciences, 29, 211-217. https://doi.org/10.3923/pjbs.2026.211.217
31. Masoko, P., and Eloff, J.N. (2007). Screening of twenty-four South African *Combretum* and six *Terminalia* species (Combretaceae) for antioxidant activities. African Journal of Traditional Complementary and Alternative Medicine, 4(2), 231-239. https://doi.org/10.4314/ajtcam.v4i2.31213
32. Masoko, P., Picard, J., and Eloff, J.N. (2007). The antifungal activity of twenty-four southern African *Combretum* species (Combretaceae). South African Journal of Botany, 73, 173–183. https://doi.org/10.1016/j.sajb.2006.09.010
33. Naidoo, V., McGaw, L.J., Bisschop, S.P.R., Duncan, N., and Eloff, J.N. (2008). The value of plant extracts with antioxidant activity in attenuating coccidiosis in broiler chickens. Veterinary Parasitology, 153, 214–219. https://doi.org/10.1016/j.vetpar.2008.02.013
34. Maurin, O., Chase, M.W., Jordaan, M., and Van Der Bank, M. (2010). Phylogenetic relationships of Combretaceae inferred from nuclear and plastid DNA sequence data: Implications for generic classification. Botanical Journal of the Linnean Society, 162, 453-476. https://doi.org/10.1111/j.1095-8339.2010.01027.x
35. McGaw, L.J., Rabe, T., Sparg, S.G., Jäger, A.K., Eloff, J.N., and Van Staden, J. (2001). An investigation into the biological activity of *Combretum* species. Journal of Ethnopharmacology, 75, 45–50. https://doi.org/10.1016/S0378-8741(00)004050
36. Mhlongo, L.S., and Van Wyk, B.-E. (2019). Zulu medicinal ethnobotany: New records from the Amandawe area of KwaZulu-Natal, South Africa. South African Journal of Botany, 122, 266–290. https://doi.org/10.1016/j.sajb.2019.02.012
37. Neuwinger, H.D. (2000). African traditional medicine. MedPharm Scientific Publishers, Stuttgart.
38. Palgrave, C.K. (2002). Coates Palgrave trees of southern Africa. C Struik Publishers, Cape Town.
39. Palmer, E., and Pitman, N. (1972). Trees of southern Africa: Covering all known indigenous species in the Republic of South Africa, South-West Africa, Botswana, Lesotho, and Swaziland. Balkema, Cape Town.
40. Patel, V.K., Rajak, H., Shirbhate, E., Kumar, A., and Singh, S.K. (2024). *Combretum caffrum* confers a potential cutting-edge anticancer molecule, as combretastatins. In: Chaurasia, P.K., Bharati, S.L., and Singh, S. (editors). The chemistry inside spices and herbs: Research and development volume 3, Bentham Science Publishers, Sharjah; pp. 173-188. http://dx.doi.org/10.2174/9789815196801124030009
41. Pooley, E. (1993). The complete field guide to trees of Natal, Zululand and Transkei. Natal Flora Publications Trust, Durban.
42. Quattrocchi, U. (2012). CRC world dictionary of medicinal and poisonous plants: common names, scientific names, eponyms, synonyms, and etymology. CRC Press, Boca Raton.
43. Schmidt, E., Lotter, M., and McCleland, W. (2017). Trees and shrubs of Mpumalanga and Kruger National Park. Jacana Media, Johannesburg.
44. Silén, H., Salih, E.Y.A., Mgbeahuruike, E.E., and Fyhrqvist, P. (2023). Ethnopharmacology, antimicrobial potency, and phytochemistry of African *Combretum* and *Pteleopsis* species (Combretaceae): A review. Antibiotics, 12, 264. https://doi.org/10.3390/antibiotics12020264
45. Stace, C.A. (1969). The significance of the leaf epidermis in the taxonomy of the Combretaceae II: The genus *Combretum* subgenus Combretum in Africa. Botanical Journal of the Linnean Society, 62, 131-168. https://doi.org/10.1111/j.1095-8339.1965.tb00060.x
46. Stace, C.A. (2002). Proposal to conserve *Terminalianom. cons.* (Combretaceae) against an additional name, Bucida. Taxon, 51, 193-194. https://doi.org/10.2307/155498550

Student's Journal of Health Research Africa
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Review Article

47. Stace, C.A. (2007). Combretaceae. In: Kubitzki, K. (editor). The families and genera of vascular plants, volume 9. Springer, Berlin, pp. 67-82. https://doi.org/10.1007/978 3-540-32219-1_11
48. Tilney, P.M. (2002). A contribution to the leaf and young stem anatomy of the Combretaceae. Botanical Journal of the Linnean Society, 138(2), 163–196. https://doi.org/10.1046/j.1095-8339.2002.138002163.x
49. Van Wyk, A.E. (1984). A new species of *Combretum* from Venda and taxonomic notes on the section Angustimarginata (Combretaceae). South African Journal of Botany, 3, 125–134. https://doi.org/10.1016/S0022-4618(16)30067-5
50. Van Wyk, P. (2008). Field guide to the trees of the Kruger National Park. Struik Publishers, Cape Town.
51. Van Wyk, B.-E., Van Oudtshoorn, B., and Gericke, N. (2013). Medicinal plants of South Africa. Briza Publications, Pretoria.
52. Venter, F., and Venter, J.-A. (2015). Making the most of indigenous trees. Briza Publications, Pretoria.
53. Watt, J.M., and Breyer-Brandwijk, M.G. (1962). The medicinal and poisonous plants of southern and eastern Africa: being an account of their medicinal and other uses, chemical composition, pharmacological effects and toxicology in man and animal. E & S. Livingstone Ltd., Edinburgh.

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