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Review Article
Ethnopharmacology and Therapeutic Value of *Corbichonia decumbens* (Forssk.) Exell (Family: Corbichoniaceae) in the Tropics: A Narrative Review

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Abstract

Corbichonia decumbens (Forssk.) Exell is an annual or short-lived perennial subshrub widely used as a leafy vegetable and in traditional medicine in Tropical Africa and Asia. This study was aimed at reviewing the medicinal uses, phytochemical and pharmacological properties of *C. decumbens*. Documented uses and ethnopharmacological properties of *C. decumbens* were obtained from online databases such as Google Scholar, JSTOR, PubMed, Scopus and ScienceDirect and pre-electronic literature sources from the University library. This study showed that *C. decumbens* is harvested from the wild as a leafy vegetable and used as fodder and ornamental plant. The leaf, root or shoot decoction and the infusion are used as ethnoveterinary medicine, tonic and emetic and traditional medicine for dandruff, hair fall, biliousness, blocked nose, gonorrhea, kidney stone problems, headache, white and yellow jaundice. The phytochemical evaluations of the plant revealed that it contains aldehydes, alkaloids, alkenes, esters, fatty acids, fatty alcohols, flavonoids, glycosides, nitrobenzene, phenols, phenylethylamine, saponins, steroids and tannins. *Corbichonia decumbens* crude extracts demonstrated analgesic, antibacterial, antifungal, anti-inflammatory, antioxidant and anti-ulcer activities. Based on the results of this review, detailed ethnopharmacological evaluations of *C. decumbens* focusing on its phytochemistry, pharmacological properties and toxicological evaluations, *in vivo* and clinical research are recommended.

Key words: Aizoaceae, *Corbichonia decumbens*, corbichoniaceae, indigenous knowledge, lophiocarpaceae, molluginaceae

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Competing Interest: The authors have declared that no competing interest exists.

Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

Corbichonia decumbens (Forssk.) Exell is an annual or short-lived perennial subshrub confined to the drier regions of Tropical Africa and Asia[1] (Fig. 1). The drylands or semi-arid regions which occupy about 45% of the Earth's land surface[2,3] are water-limited areas, highly populated and hold scarce natural resources. Because of these characteristics, these regions represent challenging areas for human societies that tend to show weaker wealth and health scores[4,5]. Historical records show that plants growing in semi-arid areas have evolved and adapted to conditions of water scarcity[6]. Therefore, some of the plant species adapted to the drier regions of Tropical Africa and Asia include succulent and other plant species that have a perennial strategy such as dying back or shedding leaves in the dry season to restrict water losses[6]. These plant species adapted to little or erratic rainfall and various forms of drought continue to play an important role as food plants, forage, traditional medicines and other uses[3]. The progressive desertification in many arid regions of the World[5,7] requires the development of multipurpose species that are resilient to the harsh climatic conditions, tolerant to saline and acidic soils and well adapted to marginal areas with low productivity which are often associated with dry tropical regions. Therefore, documentation of multipurpose species and indigenous knowledge associated with such species including *Bridelia micrantha* (Hochst.) Baill. (family Phyllanthaceae)[8], *Euclea undulata* Thunb. (family Ebenaceae)[9], *Lippia javanica* (Burm. f.) Spreng. (family Verbenaceae)[10], *Thespesia garckeana* F. Hoffm. (Synonym *Azanza garckeana* (F. Hoffm.) Exell & Hillc. (family Malvaceae)[11] and *Ximenia caffra* Sond. (family Olacaceae)[12] is likely to raise awareness of the important role of such species in local people's livelihoods. It is within this context that this study aimed to evaluate the therapeutic value and ethnopharmacological properties of *C. decumbens*. The ethnobotanical significance of *C. decumbens*, a plant species associated with arid regions of the tropics is poorly known and the lack of such information hinders decision-making on the design and implementation of biodiversity conservation measures in the drylands or semi-arid regions of the tropics where the species is used in the provision of ecosystem goods and services. This study aimed to review the medicinal uses, phytochemical and pharmacological properties of *C. decumbens*.

MATERIALS AND METHODS

Literature search on medicinal uses, botanical, phytochemical and pharmacological properties of *C. decumbens* throughout its distributional range in Tropical Africa and Asia was conducted using online databases such as Google Scholar, JSTOR, PubMed, Scopus and ScienceDirect. In addition to this, pre-electronic sources such as books, journal articles, dissertations, book chapters, theses and other scientific articles obtained from the university library were used. Keywords used in the search included "Biological Activities of *Corbichonia decumbens*", "Pharmacological Properties of *Corbichonia decumbens*", "Ethnobotany of *Corbichonia decumbens"*, "Medicinal Uses of *Corbichonia decumbens*", "Phytochemistry of *Corbichonia decumbens*" and "Traditional Uses of *Corbichonia decumbens".*

RESULTS AND DISCUSSION

Morphological description and taxonomy of *Corbichonia decumbens*: The genus *Corbichonia* Scop. belongs to the Corbichoniaceae family[13]. This genus consists of glabrous herbs or subshrubs with prostrate stems which are woody at the base[14]. In the past, the genus has been included in the family Aizoaceae, Molluginaceae and Lophiocarpaceae[15-24]. Thulin *et al.*[13] transferred the genus *Corbichonia* from the family Lophiocarpaceae to the newly established family Corbichoniaceae on the basis that members of the *Corbichonia* genus are characterized by obovate to suborbicular leaves, lax inflorescences, many stamens, petals, carpels and ovules. The fruit and seed morphological characteristics, micromorphological features of the pericarp and seed coat of the genus *Corbichonia* also differ from those of the Lophiocarpaceae family[23,24]. The Corbichoniaceae family consists of a single genus and two species, namely *C. rubroviolacea* (Friedrich) *C. Jeffrey* and *C. decumbens*[13].

The genus name "*Corbichonia*" is in honor of a 14th-century French Botanist, Writer, Translator and Monk Jean Corbichon, who was also a secretary and chaplain of Charles V[1]. The specific name "*decumbens*" is derived from the Latin word "decumbent" which means "reclining upon the earth and rising again from it "About the species' stems lying on the ground and tending to rise at the end"[1]. *Corbichonia decumbens* is commonly known in English as "Carpet weed" and "Stone plant". The synonyms of *C. decumbens* include *Axonotechium trianthemoides* (B.Heyne) Fenzl, *Glinus mucronatus* (Klotzsch) Klotzsch, *Glinus trianthemoides* B.Heyne, *Orygia decumbens* Forssk., *Orygia mucronata* Klotzsch, *Portulaca decumbens* (Forssk.) Vahl, *Talinum decumbens* (Forssk.) Willd. and *Telephium laxiflorum* DC.[1,13,18,24].

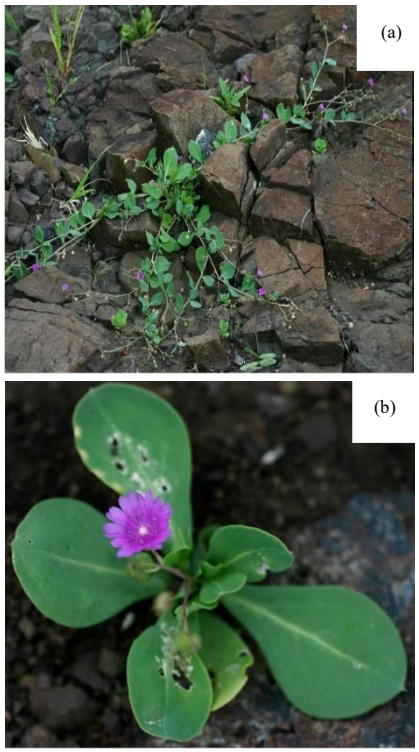

Fig. 1(a-b): *Corbichonia decumbens*, (a) General plant habit and (b) Entire plant with flowers leaves

Corbichonia decumbens is an annual or occasionally short-lived perennial herb or subshrub growing up to 50 cm in height with decumbent stems and woody at the base[1,18]. *Corbichonia decumbens* is stout, diffusely branched with glabrous vegetative parts, decumbent, spreading and basally subwoody[1]. The leaves are alternate, slightly fleshy, obovate, ovoid or oblong in shape, apiculate, shortly-petiolate, with winged petioles, decurrent and often reddish at the margins and the leaves terminating in a short tip. The inflorescence of *C. decumbens* is lax, terminal or seemingly leaf-opposed cymes. The flowers are pedicellate, pink, mauve, magenta, or red in color (Fig. 1a-b). The perianth segments are free, ovate and cuspidate with membranous margins (Fig. 1b). The fruit is a loculicidal, yellowish-green in color, shiny and the seeds are many, concentrically ridged and with white aril. *Corbichonia decumbens* has been recorded in woodland, savanna, rocky hills, hot and dry areas in alluvial, stony and sandy soils, water courses between mountains and cultivated ground at an altitude ranging from sea level to 1465 m above sea level[1,18]. *Corbichonia decumbens* has been recorded in Angola, Botswana, Chad, the Democratic Republic of Congo (DRC), Djibouti, Egypt, Eritrea, Eswatini, Ethiopia, India, Iran, Kenya, Malawi, Mauritania, Mozambique, Namibia, Niger, Oman, Pakistan, Saudi Arabia, Socotra, Somalia, South Africa, South Sudan, Sudan, Tanzania, Uganda, Yemen and Zimbabwe[1,13,18,23,24]. *Corbichonia decumbens* is regarded as a common weed throughout its distributional range[25-27], recorded in agricultural fields, home gardens and also common on fallow land, disturbed habitats and wastelands. The species is drought and heat-tolerant, surviving on poor, sandy and rocky soils, under hot, arid and dry environments. Therefore, it is easy for *C. decumbens* to invade new areas as the species has an aggressive colonizing ability of disturbed habitats and also because of its ability to adapt to dry habitats. *Corbichonia decumbens* has been introduced to other parts of the World, including Australia and the United States, where it is categorized as an invasive species[27].

Traditional and medicinal uses of *Corbichonia decumbens*: *Corbichonia decumbens* is browsed by cattle in Kenya[28] and the species is a valuable fodder species, particularly in arid regions. *Corbichonia decumbens* is often used as an ornamental plant in home gardens and around houses and playing grounds as a ground cover. The trailing stems of the species and the pink, mauve, magenta, or red flowers make *C. decumbens* a valuable home garden species and an ornamental plant that can be introduced into landscaped areas or zones. The leaves of *C. decumbens* are boiled and consumed as a leafy vegetable and/or famine food in Botswana, Egypt, Ethiopia, South Africa, South Sudan and Sudan[1,27,29-34]. In Southern Africa, *C. decumbens* is regarded as an important medicinal and the plant species is included in the monograph "Medicinal and magical plants of Southern Africa: An annotated checklist[35]. Similarly, the roots of *C. decumbens* are sold as sources of traditional medicines in informal herbal medicine markets in the Gauteng Province in South Africa[36]. In South Africa, the root decoction of *C. decumbens* is taken orally as emetic and traditional medicine for biliousness[37] (Table 1). The leaf and root decoction of *C. decumbens* is mixed with leaves of *Acorus calamus* L. (family Acoraceae) and *Eucalyptus globulus* Labill. (family Myrtaceae) as traditional medicine for blocked nose[38,39]. In India, the shoots of *C. decumbens* are used as sources of ethnoveterinary medicine[40] while the leaf juice is applied topically for dandruff and hair fall[41]. The leaf or whole plant decoction and/or infusion of *C. decumbens* is taken orally against gonorrhoea[42-50] and kidney stone problems[42-46,48-51]. The leaf decoction and infusion of *C. decumbens* is taken orally as a tonic[42-45], while root decoction of the species is taken orally as a remedy for headache[48], white and yellow jaundice[52].

Table 1: Medicinal uses of *Corbichonia decumbens*

Medicinal use	Parts used	Country	References
Biliousness	Root decoction taken orally	South Africa	Watt and Breyer-Brandwijk[37]
Blocked nose	Leaf and root decoction mixed with leaves of *Acorus calamus* L. (family: Acoraceae) and *Eucalyptus globulus* Labill. (family: Myrtaceae)	South Africa	Felhaber[38] and Van Vuuren *et al.*[39]
Dandruff	Leaf juice applied topically	India	Kala *et al.*[41]
Emetic	Root decoction taken orally	South Africa	Watt and Breyer-Brandwijk[37]
Gonorrhea	Leaf or whole plant decoction and infusion taken orally	India	Katewa and Galav[40], Uma *et al.*[43], Uma *et al.*[44], Arora and Saini[45], Uma *et al.*[46], Kala *et al.*[47], Arora and Saini[48], Sharmila *et al.*[49] and Dudi *et al.*[50]
Hair fall	Leaf juice applied topically	India	Kala *et al.*[41]
Headache	Root decoction taken orally	India	Arora and Saini[48]
Jaundice (white and yellow)	Root decoction taken orally	India	Priya *et al.*[52]
Kidney stone problems	Leaf or whole plant decoction or infusion taken orally	India	Katewa and Galav[40], Uma *et al.*[43], Uma *et al.*[44], Arora and Saini[45], Uma *et al.*[46], Kala *et al.*[47], Arora and Saini[48], Sharmila *et al.*[49], Dudi *et al.*[50] and Nandagoapalan *et al.*[51]
Tonic	Leaf decoction and infusion taken orally	India	Katewa and Galav[40], Uma *et al.*[43], Uma *et al.*[44], Arora and Saini[45] and Sharmila *et al.*[49]
Ethnoveterinary medicine			
Dysuria	Shoot infusion	India	Galav *et al.*[40]

PHYTOCHEMICAL AND PHARMACOLOGICAL PROPERTIES OF *CORBICHONIA DECUMBENS*

The callus, roots, stems and whole plant parts of *C. decumbens* are characterized by aldehydes, alkaloids, alkenes, esters, fatty acids, fatty alcohols, flavonoids, glycosides, nitrobenzene, phenols, phenylethylamine, saponins, steroids and tannins[53-55] (Table 2). Some of these chemical compounds may be responsible for the biological activities associated with the species which include analgesic, antibacterial, antifungal, anti-inflammatory, antioxidant and anti-ulcer activities.

Analgesic activities: Uma *et al.*[43] evaluated the analgesic activities of methanol extracts of *C. decumbens* leaves and roots on Swiss albino mice using Eddy's hot plate and tail flick methods with pentazocine as a positive control. The extracts exhibited activities at 200.0 mg/kg body weight which raised the pain threshold in comparison to the positive control.

Antibacterial activities: Uma *et al.*[43] evaluated the antibacterial activities of methanol extracts of *C. decumbens* leaves against *Salmonella paratyphi*, *Bacillus thuringiensis*, *Streptococcus faecalis*, *Staphylococcus aureus*, *Proteus vulgaris*, *Serratia marcescens* and *Escherichia coli* using the agar well diffusion method with ampicillin as a positive control. The extract exhibited activities against the tested pathogens with a zone of inhibition ranging from 11.0-18.0 mm[43]. Dha and Arunprasath[56] evaluated the antibacterial activities of ethanol extract of *C. decumbens* leaves against *Staphylococcus aureus*, *Klebsiella pneumoniae* and *Salmonella paratyphi* using the agar well diffusion method with ciprofloxacin as a positive control. The extract displayed antibacterial activity against the tested pathogens, with inhibition zones ranging from 3.0-8.0 mm. These values were comparable to the inhibition zones of 8.0-12.0 mm observed for ampicillin, used as the positive control[56].

Antifungal activities: Uma *et al.*[43] evaluated the antifungal activities of methanol extracts of *C. decumbens* leaves against *Mucor* spp., *Paecilomyces lilacinus*, *Trichoderma viride*, *Verticillium lecanii*, *Azospirillum lipoferum* and *Penicillium* spp., using the agar well diffusion method with tetracycline as a positive control. The extract exhibited activities against the tested pathogens with a zone of inhibition ranging from 11.0-18.0 mm[43]. The Dha and Arunprasath[56] evaluated the antifungal activities of ethanol extract of *C. decumbens* leaves against *Candida albicans* and *Aspergillus fumigatus* using the agar well diffusion method with ciprofloxacin as a positive control. The extract exhibited antifungal properties against the tested fungal pathogens showing the zone of inhibition which ranged from 2.0-5.0 mm which was comparable to 6.0 mm demonstrated by ciprofloxacin, the positive control[56].

Anti-inflammatory activities: Uma *et al.*[44] evaluated the anti-inflammatory activities of methanol extracts of *C. decumbens* leaves and roots using the carrageenan and histamine-induced paw edema methods using Swiss albino mice and Wister albino rats with indomethacin as a positive control. The extracts showed anti-inflammatory activities in animal models[44].

Table 2: Phytochemical compounds isolated from *Corbichonia decumbens*

Chemical compound	Formula	Part	References
1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15-Hexadecamethyl octasiloxane	$C_{12}H_{36}O_5Si_6$	Whole plant	Saranya and Arunprasath[55]
1H-Imidazo[1,5-c]thiazole-5,7(6H,7ah)-dio	$C_6H_3Cl_2N_3$	Whole plant	Saranya and Arunprasath[55]
1-Heptacosanol	$C_{27}H_{56}O$	Roots and stems	Saranya and Arunprasath[55]
1-Heptadecene	$C_{17}H_{34}$	Callus	Gomathi *et al.*[53]
1-Hexadecene	$C_{16}H_{32}$	Callus	Gomathi *et al.*[53]
1-Methyl-3,5-dinitro-1H-[1,2,4]triazole	$C_3H_3N_5O_4$	Whole plant	Saranya and Arunprasath[55]
1-Nonadecene	$C_{19}H_{38}$	Callus	Gomathi *et al.*[53]
1-Octacosanol	$C_{28}H_{58}O$	Callus	Gomathi *et al.*[53]
1-Pentadecene	$C_{15}H_{30}$	Callus	Gomathi *et al.*[53]
1-Tetradecene	$C_{14}H_{28}$	Roots and stems	Saranya and Arunprasath[55]
1-Undecene, 9-methyl	$C_{12}H_{24}$	Callus	Gomathi *et al.*[53]
1,2 benzenedicarboxylic acid, bis (2 methylpropyl) ester	$C_{16}H_{22}O_4$	Roots and stems	Saranya and Arunprasath[55]
1,2-Benzenedicarboxylic acid, butyl octyl ester	$C_{20}H_{30}O_4$	Callus	Gomathi *et al.*[53]
2,3 dihydro-3,5-dihydroxy-6-methyl-4H-pyran-4-one	$C_6H_8O_4$	Roots and stems	Saranya and Arunprasath[55]
2,4,6,8-Tetraazabicyclo[3.3.0]octan-3-one	$C_8H_{14}N_4O_2$	Whole plant	Saranya and Arunprasath[55]
2,5-dihydroxybenzyl alcohol	$C_7H_8O_3$	Whole plant	Saranya and Arunprasath[55]
3,7,11,15-Tetramethyl-2-hexadecen-1-ol	$C_{20}H_{40}O$	Whole plant	Saranya and Arunprasath[55]
3,7,11,15 tetramethyl ,[R [R*,R* (E)]] 2 pentadecanone, 6,10,14 trimethyl	$C_{18}H_{36}O$	Roots and stems	Saranya and Arunprasath[55]
2-Hexadecen-1-ol	$C_{20}H_{40}O$	Roots and stems	Saranya and Arunprasath[55]
2-Hexadecen-1-ol,3,7,11,15-tetram	$C_{20}H_{40}O$	Whole plant	Saranya and Arunprasath[55]
2-Methoxy-4-vinylphenol	$C_9H_{10}O_2$	Callus	Gomathi *et al.*[53]
2-methyl-6-phenethylamino-tet	$C_{13}H_{28}$	Whole plant	Saranya and Arunprasath[55]
2 methyloctacosane	$C_{29}H_{60}$	Roots and stems	Saranya and Arunprasath[55]
2-Nonanol, 5-ethyl	$C_{11}H_{24}O$	Whole plant	Saranya and Arunprasath[55]
2-Octanol-2-D	$C_8H_{18}O$	Whole plant	Saranya and Arunprasath[55]
2-Propanol	C_3H_8O	Whole plant	Saranya and Arunprasath[55]
2-Pyrrolidinone	C_4H_7NO	Callus	Gomathi *et al.*[53]
3-cyclopentylpropionic acid, 2-dimethylaminoethyl ester	$C_{23}H_{38}O_2$	Roots and stems	Saranya and Arunprasath[55]
7,9-di-tert-butyl-1-oxaspiro (4,5) deca-6,9-diene-2,8-dione	$C_{17}H_{24}O_3$	Roots and stems	Saranya and Arunprasath[55]
8-Octadecanone	$C_{18}H_{36}O$	Callus	Gomathi *et al.*[53]
8-Pentadecanone	$C_{15}H_{30}O$	Callus, roots and stems	Gomathi *et al.*[53]
9-Eicosene	$C_{20}H_{40}$	Roots and stems	Saranya and Arunprasath[55]
9-Octadecenoic acid, methyl ester	$C_{19}H_{36}O_2$	Callus	Gomathi *et al.*[53]
10-Nonadecanone	$C_{19}H_{38}O$	Callus	Gomathi *et al.*[53]
Acetic acid, 3,7,11,15-tetramethyl-hexadecyl ester	$C_{22}H_{44}O_2$	Callus	Gomathi *et al.*[53]
Ammonium oxalate	$C_2H_8N_2O_4$	Whole plant	Saranya and Arunprasath[55]
Benzenamine,2,5-dichloro-4-nitro	$C_6H_4Cl_2N_2O_3$	Whole plant	Saranya and Arunprasath[55]
Benzeneacetaldehyde	C_8H_8O	Callus	Gomathi *et al.*[53]
Benzoic acid, 4-methyl-2-trimethylsilyloxy	$C_{14}H_{24}O_3Si_2$	Whole plant	Saranya and Arunprasath[55]
Benzocyclodecene, tetradecahydro	$C_{14}H_{26}$	Callus	Gomathi *et al.*[53]
Butyrolactone	$C_4H_6O_2$	Callus	Gomathi *et al.*[53]
Carbamic acid, 2,2,3,3-tetrafluoro	$C_5H_7F_4NO_2$	Whole plant	Saranya and Arunprasath[55]
Cyclohexane, decyl- and eicosyl	$C_{16}H_{32}$	Callus	Gomathi *et al.*[53]
Decane	$C_{10}H_{22}$	Whole plant	Saranya and Arunprasath[55]
Dibutyl phthalate	$C_{16}H_{22}O_4$	Callus	Gomathi *et al.*[53]
Dodecane	$C_{12}H_{26}$	Whole plant	Saranya and Arunprasath[55]
Dodecanoic acid	$C_{12}H_{24}O_2$	Roots and stems	Saranya and Arunprasath[55]
Dodecanoic acid, 1-methylethyl ester	$C_{15}H_{30}O_2$	Roots and stems	Saranya and Arunprasath[55]
Dodecylcyclohexane	$C_{18}H_{36}$	Callus	Gomathi *et al.*[53]
Eicosane	$C_{20}H_{42}$	Roots and stems	Saranya and Arunprasath[55]
Heptadecane	$C_{17}H_{36}$	Roots and stems	Saranya and Arunprasath[55]
Hexadecane	$C_{16}H_{34}$	Roots and stems	Saranya and Arunprasath[55]
Hexadecanoic acid, ethyl ester	$C_{18}H_{36}O_2$	Whole plant	Saranya and Arunprasath[55]
Hexadecanoic acid, methyl ester	$C_{17}H_{34}O_2$	Callus	Gomathi *et al.*[53]
Methyltris(trimethylsiloxy)silane	$C_{10}H_{30}O_3Si_4$	Whole plant	Saranya and Arunprasath[55]
Mome inositol	$C_7H_{14}O_6$	Roots and stems	Saranya and Arunprasath[55]
n-nonadecanol-1	$C_{19}H_{40}O$	Roots and stems	Saranya and Arunprasath[55]
n-tetracosanol-1	$C_{24}H_{50}O$	Roots and stems	Saranya and Arunprasath[55]
Naphthalene	$C_{10}H_8$	Roots and stems	Saranya and Arunprasath[55]
Nitrobenzene	$C_6H_5NO_2$	Callus	Gomathi *et al.*[53]
Nonadecyl pentafluoropropionate	$C_{22}H_{39}F_5O_2$	Callus	Gomathi *et al.*[53]
Octadecane	$C_{18}H_{38}$	Roots and stems	Saranya and Arunprasath[55]

Table 2: Continue

Chemical compound	Formula	Part	References
Octadecanal	$C_{18}H_{36}O$	Roots and stems	Saranya and Arunprasath[55]
Octadecanoic acid	$C_{18}H_{36}O_2$	Roots and stems	Saranya and Arunprasath[55]
Octadecanoic acid, methyl ester	$C_{19}H_{38}O_2$	Roots and stems	Saranya and Arunprasath[55]
Oxirane, tetradecyl	$C_{16}H_{32}O$	Whole plant	Saranya and Arunprasath[55]
p-Cyanophenyl p-(2-propoxyethoxy)benzoate	$C_{19}H_{19}NO_4$	Whole plant	Saranya and Arunprasath[55]
Pentacosanoic acid, methyl ester	$C_{26}H_{52}O_2$	Callus	Gomathi *et al.*[53]
Pentadecane	$C_{15}H_{32}$	Roots and stems	Saranya and Arunprasath[55]
Pentadecane, 1-methoxy-13-methyl	$C_{17}H_{36}O$	Callus	Gomathi *et al.*[53]
Pentadecanoic acid	$C_{15}H_{30}O_2$	Roots and stems	Saranya and Arunprasath[55]
Pentafluoropropionic acid, octadecyl ester	$C_{21}H_{37}F_5O_2$	Callus	Gomathi *et al.*[53]
1,1,3,3,5,5,7,7,9,9-decamethylpentasiloxane	$C_{10}H_{30}O_4Si_5$	Whole plant	Saranya and Arunprasath[55]
Phenol, 2-4-bis (1,1 dimethylethyl)	$C_{14}H_{22}O$	Callus, roots and stems	Gomathi *et al.*[53]
Propane, 1,1-diethoxy-2-methyl	$C_8H_{18}O_2$	Whole plant	Saranya and Arunprasath[55]
Silicic acid, diethyl bis(trimethylsilyl) ester	$C_{10}H_{28}O_4Si_3$	Whole plant	Saranya and Arunprasath[55]
Squalene	$C_{30}H_{50}$	Roots and stems	Saranya and Arunprasath[55]
Stigmasta 5,22 dien 3 ol	$C_{29}H_{48}O$	Roots and stems	Saranya and Arunprasath[55]
Stigmast 5 en 3 ol, (3β)	$C_{47}H_{84}O_2$	Roots and stems	Saranya and Arunprasath[55]
Sulfurous acid, isobutyl 2-pentyl ester	$C_9H_{20}O_3S$	Whole plant	Saranya and Arunprasath[55]
Tetradecane	$C_{14}H_{30}$	Roots, stems and whole plant	Saranya and Arunprasath[55]
Tetradecanoic acid	$C_{14}H_{28}O_2$	Roots and stems	Saranya and Arunprasath[55]
Tetrahydro-4H-pyran-4-ol	$C_5H_{10}O_2$	Callus	Gomathi *et al.*[53]
trans-4,4'-Dimethoxy-beta-methylchalcone	$C_{18}H_{18}O_3$	Whole plant	Saranya and Arunprasath[55]
Tritetracontane	$C_{43}H_{88}$	Callus	Gomathi *et al.*[53]
Undecane	$C_{11}H_{24}$	Whole plant	Saranya and Arunprasath[55]

Antioxidant activities: The Dha and Arunprasath[56] evaluated the antioxidant activities of ethanol and petroleum ether extracts of *C. decumbens* leaves using the DPPH free radical scavenging assay, that is 2,2-diphenyl-1-picrylhydrazyl, with ascorbic acid used as a positive control. The petroleum ether and ethanol extracts demonstrated moderate antioxidant activities showing 41.2 and 55.9%, respectively which was lower than 83.0% demonstrated by ascorbic acid, the positive control[56].

CONCLUSION

Corbichonia decumbens is a valuable plant species in Tropical Africa and Asia characterized by numerous medicinal, traditional and cultural uses. The species is also widely used as a medicinal plant in addressing primary health issues such as gonorrhea, kidney stone problems, headache and white and yellow jaundice. However, detailed studies focusing on phytochemical and pharmacological properties, toxicity and safety, mechanisms of action *in vivo* and clinical research aimed at corroborating the traditional medicinal applications of the species are required. It is also surprising that there are no ethnopharmacological studies examining the combinational effects of *C. decumbens* extracts with other plant species such as *A. calamus* and *E. globulus*. Therefore, detailed ethnopharmacological evaluations of the species aimed at corroborating its medicinal applications are recommended.

SIGNIFICANCE STATEMENT

This study contributes to the existing traditional knowledge about medicinal applications of *C. decumbens* that could be useful in bio-prospecting for new health-promoting and pharmaceutical products. Compilation of the medicinal applications and chemical and pharmacological properties of *C. decumbens* is an important step towards the identification of knowledge gaps required to corollate the medicinal applications of the species with its ethnopharmacological properties. Therefore, future studies on *C. decumbens* should focus on conducting detailed ethnopharmacological evaluations of the species emphasizing phytochemistry, nutritional, pharmacological properties and toxicological evaluations of the species, *in vivo* and clinical research aimed at corroborating the traditional nutritional and medicinal applications of the species.

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