INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES
[ISSN: 0975-4725; CODEN(USA): IJPS00]
Journal Homepage: https://www.ijpsjournal.com

OPEN ACCESS

Review Article

Alternanthera Sessilis' A Possible Promising Herb for The Cure of Chronic Diseases Mediated by Oxidative Damage

Vageesh Revadigar*, Aishwarya K. P., Chiranthana H. R., Nisha S. S., Charan M., Kishan K. N.

Department Of Pharmacognosy, Bharathi College of Pharmacy, Bharathinagara, Mandya- 571 422, Karnataka, India.

ARTICLE INFO

Published: 09 Sept. 2025
Keywords:
Alternanthera sessilis, Perennial herb, bisexual flower, vitamins, essential oils, wound healing potentials, biological activities
DOI:
10.5281/zenodo.17084201

ABSTRACT

Alternanthera sessilis (family Amaranthaceous) is an edible medicinal herb traditionally used in Asian countries for treating various ailments. In recent years, it has attracted attention of scientific community due to its potent antioxidant and anti-inflammatory properties. Phytochemical analyses reveal that the plant is rich in flavonoids, phenolic compounds, alkaloids, terpenoids, and other bioactive metabolites, which collectively contribute to its pharmacological activities. Antioxidant studies have shown that different extracts of A. sessilis exhibit the strong free radical scavenging ability, inhibit lipid peroxidation, and enhance endogenous antioxidant enzymes such as superoxide dismutase, catalase, and glutathione peroxidase. These mechanisms do help in reducing the oxidative stress, which is implicated in the pathogenesis of chronic disorders including cardiovascular disease, neurodegeneration, and diabetes. In parallel, A. sessilis also demonstrates notable anti-inflammatory activity. Both in vitro and in vivo studies indicate that the plant suppresses the production of pro-inflammatory mediators such as nitric oxide, tumour necrosis factor-α, interleukin-6, and cyclooxygenase-2. By modulating these inflammatory pathways, the plant reduces tissue injury and promotes recovery. The dual antioxidant and anti-inflammatory potential of A. sessilis supports its traditional use and highlights its promise as a natural therapeutic agent. Nevertheless, most findings till date are limited to its preliminary laboratory and animal studies. More detailed investigations focusing on bioactive compound isolation, mechanistic pathways, safety evaluation, and clinical validation are essential to fully establish its therapeutic role.

INTRODUCTION

***Corresponding Author:** Vageesh Revadigar
Address: *Department Of Pharmacognosy, Bharathi College of Pharmacy, Bharathinagara, Mandya- 571 422, Karnataka, India.*
Email ✉: kishukishu003@gmail.com
Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Noxious weed (*Alternanthera sessilis*) is a perennial herb belonging to Amaranthaceous family. It has been used as food since the ancient times. The genus Alternanthera contains a range of 80–200 species. The native range of this genus is uncertain but it is stated in few studies that this genus was first grown in North America as well as tropical and sub-tropical areas and open forests of South America[1]. It is commonly eaten as a vegetable and taken in soups in several Asian countries particularly in India. Besides, it has also been used by the folk healers to cure headaches, heal burns, wash eyes, and deal with snakebites[2]. Usually, decoction of *A. sessilis* is recommended as an herbal remedy to treat wounds, flatulence, nausea, vomiting, cough, bronchitis, diarrhoea, dysentery and diabetes. Its root can relieve inflamed wounds. It is used as a local medicine often in mixtures with other medicinal plants, to treat hepatitis, tight chest, bronchitis, asthma and other lung troubles. The leaves and shoots are boiled and drunk as antihypertensive remedy[3].



Figure 1: *Alternanthera sessilis* green variety



Figure 2: *Alternanthera sessilis* red variety

Habitat:

A. sessile is a common pantropical weed of shady, damp soils in cultivated and waste areas. It is commonly associated with roadsides, pathways, wasteland, irrigation canals, ditches, dykes, gardens, swamps, and fallow ground. It can be found in hydromorphic rice fields in West Africa and Asia, and in the following cultivated areas: maize crops in Nigeria; sorghum, millet, *Eleusine* sp., maize, cotton, cassava, groundnuts and cash crops in Zaire; and tobacco, dryland field crops, pastures and vegetable farms in the Philippines. While it is typically found growing on disturbed parts of a variety of wetland habitats, including in water up to 1 m deep, the plant is adapted to both hydric and xeric conditions[4].

Biology and Ecology:

Reproductive biology and Phenology:

A. sessile is an annual or perennial herb, 0.2-1 m high, with strong creeping tap roots. The stems are generally prostrate, often rooting at the nodes, sometimes floating, creeping or ascending at the tips, cylindrical and slightly hairy, with numerous erect branches. It is propagated by vegetative fragments, and seeds, and fruits which are

dispersed myrmechorously (by ants). The average number of seeds produced per plant is ca 2000[4]. *A. sessilis* has been recorded flowering and fruiting all year in some areas. In India, the plants bear the flowers and fruit throughout the year with most vigorous vegetative growth at the onset of the monsoon season, and most vigorous reproductive growth at the end of the season. Flowers are self-pollinated and the fruits are dispersed by both wind and water. Whereas in Java, Indonesia, it flowers from January to December. In China these species bear flowers from May to July and fruits from July to September. In North America it has been recorded that flowering happens during summer or early autumn[4].

Environmental Requirements:

A. sessilis can grow on a wide range of soil types, preferring wet conditions. It can be found at low and medium altitudes in the Philippines and Indonesia. It prefers loamy, alkaline soils, low in exchangeable calcium and rich in total nitrogen. This species is able to grow in flooded areas (up to 90 cm deep), but it is also tolerant of extreme dry conditions[4]. This species is often present in species-rich associations with a range of aquatic and wetland plants in disturbed wetlands. It grows in the drawdown zones of water bodies or in water up to 1 m deep, where it may be part floating and part emergent or even grow in mats of floating vegetation, but can also grow in relatively dry situations[4].

Plant Profile: -

Kingdom: Plantae

Subkingdom: Trophobionts

Super division: Spermatophyta

Division: Magnoliophyte

Class: Magnoliopsida

Sub Class: Caryophyllid

Order: Caryophyllales

Family: Amaranthaceous

Genus: *Alternanthera*

Species: *Alternanthera sessilis (L.) R.Br.*

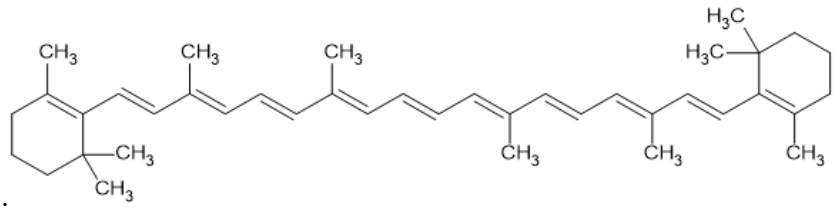
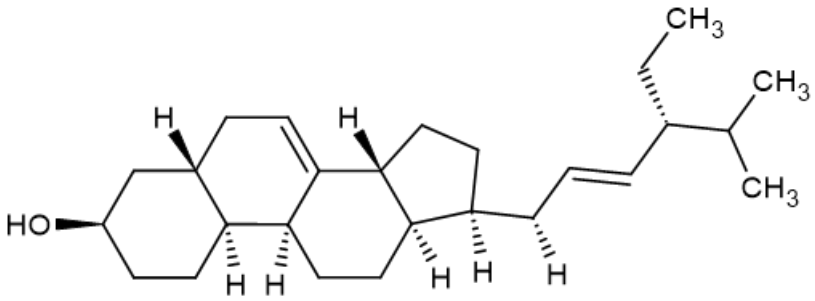
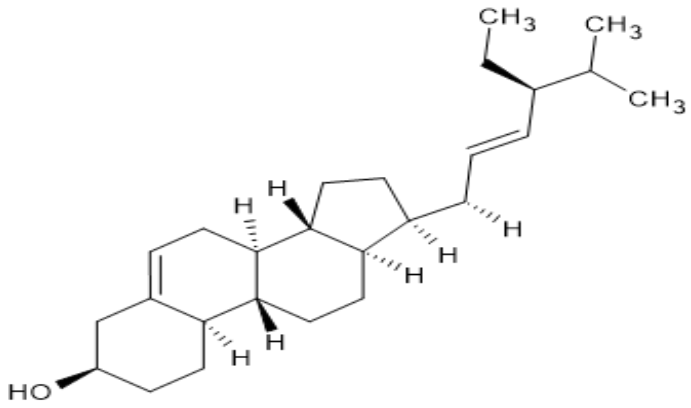
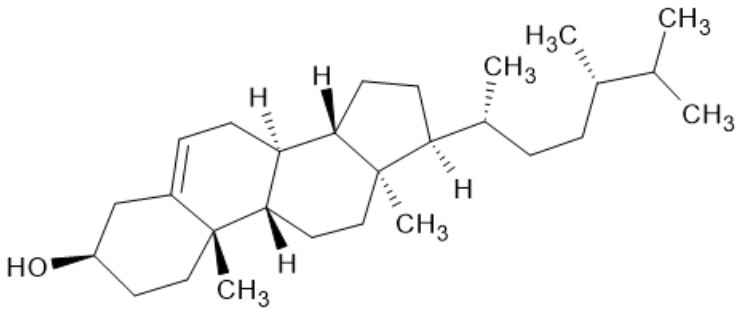
Synonym: *Alternanthera denticulata R*[5].

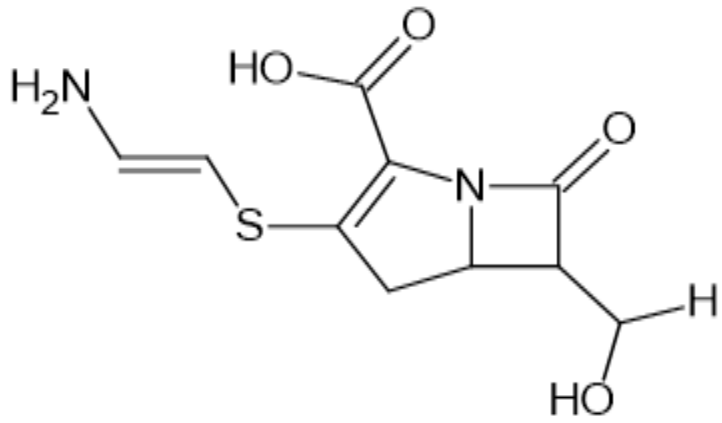
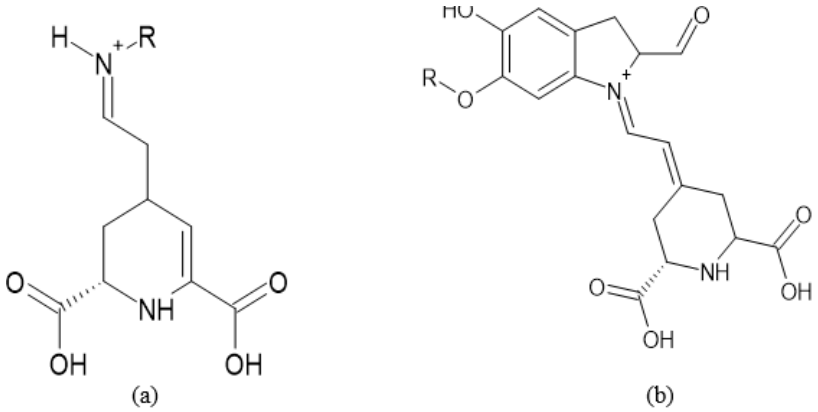
Chemical constituents:

The plant contains an array of chemical constituents viz β sitosterol, stigmasterol, campest Erol, α-spina sterol, olivanic acid, rhamnoside,24-methylene cycloartenol, cycloeucalenol, lupeol,5-α-stigasta-7-enol and its palmitate, nonacosane,16-hentriacontane, handianol. oxalic acid, saturated aliphatic hydrocarbon, ester and saturated ester. Katya Kini Muniandy et al., reported that the hydroethanolic extract of *Alternanthera sessilis* showed 50 prominent peaks in GC-MS analysis. The most post prevailing compounds were identified as 2,4 –dihydroxy2,5-dimethyl-3(2H)-furan-3-one, hexadecenoic acid ,2-1,2,4-trioxolane,3 phenyl-palmitate and L-glutamic acid. Saipraasad Gothai et al., identified higher hydrocarbons, alkanes, esters terpenes, flavonoids, organic compounds, steroids and fatty acids among 13 Phyto-constituents isolated by GC-MS analysis Khan et al., isolated the major compounds of essential oil of flower based on the prominent peaks were 1,1,1, 5,5,5,-hexa methyl-3-3-bis[trimethylsilyl)oxy] Tri siloxane,trans4-ethyl-5-octyl-2,2-bis (trifluoromethyl)-1,3-dioxolane and tetrahydro-2,5-dimethoxy furan. The major components of essential oil of leaves were identified as 1,1,1,5,5,5 – hexamethyl-4-Npentylthiane, didodecylphthalate and

tetrahydro-2,5, - dimethoxy furan by GC-MS analysis[6].

Table 1: Phyto-chemical constituents of *Alternanthera sessilis*[6].

Chemical Name	Structure
β - carotene	
α- Spina sterol	
Stigmasterol	
Campesterol	

Olivanic Acid	
Betalain	

Uses:

Alternanthera sessilis is used for simple stomach disorders, diarrhoea and dysentery, and as a plaster used for diseased or wounded skin. In Nigeria the pounded plant is used for headache and vertigo. In Senegal and India leafy twigs are ground to a powder, are applied for snakebite. *A. sessilis* is a popular folk medicine in Taiwan, often in mixtures with other medicinal plants to treat hepatitis, tight chest, bronchitis, asthma and other lung problems. In Thailand and Sri Lanka, it is used as a galactagogue (a substance that induces lactation)[7]. *A. sessilis* has antisecretory and cytoprotective effects that may be related to the presence of various phytochemicals present in it and detected during phytochemical analysis[8]. Anthelmintic activity is known to be produced when the juice of *A. sessilis* is administered with the two spoons of warm water in an empty stomach[9]. *A. sessilis* plant parts possess anticancer activities. Ethanolic leaf extracts of *A. sessilis* is utmost active for the treatment of colon cancer[10]. This herb has been reported to be used as a galactagogue, cholagogue and febrifuge and in indigestion[11]. The leaf sap of *A. sessilis* is used for the treatment of neuralgia. *A. sessilis* is also used for the treatment of gastrointestinal troubles, chronic liver obstruction, leucorrhoea, gonorrhoea and to reduce body temperature[12].

Pharmacological Activities:

A. sessilis has been proved through *in-vitro* and *in-vivo* studies that it has proven anti-microbial, wound healing activities, anti-oxidant activities, antipyretic activity, nootropic activity, hepato-protective activity, hematinic activity, anti-ulcer activity, hypoglycaemic activity, anti-diarrhoeal property, and anti-Inflammatory activity. *A. sessile* has been reported the *in vivo* antiulcer activity of the chloroform insoluble ethanolic extract of whole plant of *A. sessilis* using different models of ulceration in rats, viz. pylorus ligature, aspirin induced and cold-restraint stress-induced gastric lesions in rats. Therapeutic benefits of the *A. sessilis* include anti-inflammatory effect, the nootropic activity, cytotoxic effect towards pancreatic cancer cell lines, and the free radical-scavenging ability. The ethanolic extract of *Alternanthera sessilis Linn.* shows a significant antimicrobial activity against microorganisms like *Bacillus polymedia, Salmonella typhi, Candida albicans* etc. One of the studies demonstrated that ASEAF (*Alternanthera sessilis* red ethyl acetate fraction) possesses anti-hyperglycaemic effect, anti-triglyceridemic effect, and pancreatic protective effect in obese type 2 diabetic rats. It is a good adjuvant with sex tonics and for females a natural galactagogue. It has been reported the anti-diarrhoeal activity of the aqueous extract of dried entire plant material of *A. sessilis*. The hematinic activity of *A. sessilis (L.) R. Br.* was evaluated by monitoring the change in serum ferritin and haemoglobin levels of mice and rats[13].

Pharmacological Properties of ASG and ASR

1. Antioxidant Properties
2. Anti-inflammatory Activities
3. Anti-cancer Activities
4. Antimicrobial and Antifungal Activities
5. Anti-hyperglycaemia Activities
6. Hepatoprotective Effects
7. Analgesic Activities[13].

"From the listed pharmacological properties of *Alternanthera sessilis*, anti-oxidant activity and anti-inflammatory activity were selected for further evaluation. These two activities are of particular interest because oxidative stress and inflammation are interrelated biological processes that play a central role in the development of chronic diseases such as cancer, diabetes, cardiovascular disorder, and neurodegenerative conditions. Anti-oxidant property helps in neutralizing free radicals and preventing cell damage, while anti-inflammatory activity reduces tissue injury caused by prolonged inflammatory responses. Therefore, focusing on these activities provide a strong basis for exploring the therapeutic potential of *Alternanthera sessilis*"[13].

Antioxidant Activity

It is increasingly being realized that many of today's diseases are due to the "oxidative stress" that results from an imbalance between formation and neutralization of pro-oxidants. Oxidative stress is initiated by free radicals, which seek stability through electron pairing with biological macromolecules such as proteins, lipids and DNA in healthy human cells and cause protein and DNA damage along with lipid peroxidation. These changes contribute to cancer, atherosclerosis, cardiovascular diseases, ageing and inflammatory diseases. All human cells protect themselves against free radical damage by enzymes such as superoxide dismutase (SOD) and catalase, or compounds such as ascorbic acid, tocopherol and glutathione. Sometimes these protective mechanisms are disrupted by various pathological processes and antioxidant supplements are vital to

combat such oxidative damage. Recently, much attention has been directed towards the development of ethnomedicines with strong antioxidant properties but low cytotoxicity. *Alternanthera sessilis (L.) DC.* (Amaranthaceae), commonly known as Matyakshika is an ayurvedic medicine. It has been used in Indian traditional system of medicine since a long time in diseases due to vitiated blood, skin diseases and ulcers[14]. The leaves and shoots are boiled and drunk as an antihypertensive remedy. Phytochemical studies till have reported the isolation of flavanols, triterpenoids, steroids and tannins; β-sitosterol, stigmasterol, campesterol, lupeol being few of its important constituents. The petroleum ether and benzene extracts reported to inhibit the growth of some human and plant pathogenic bacteria[14]. Moreover, the antioxidant properties of ASR could also be due to its betalain pigment. Betalain is a secondary metabolite derived from the amino acid L-tyrosine via the formation of L-dihydroxyphenylalanine (L-DOPA). It can be categorised into betacyanin and betaxanthins. Betacyanin's include the reddish to violet betalain pigments, while betaxanthins are those betalain pigments that appear yellow to orange. In a study, betalain extract of Talinum triangulare had successfully inhibited DPPH radical. However, the relationship between betalain content in ASR and its antioxidant capacity is yet to be known[15]. Increased production of oxygen radicals may result in Deoxyribonucleic Acid (DNA) degradation and alteration that could potentially cause aging-related diseases and cancers. Natural remedies, particularly herbal antioxidants, have been effectively used as rejuvenators to cure illnesses or diseases driven by oxidative stress for many years. This is due to antioxidants being a highly valuable compound in defending the body from harm induced by free radical oxidative stress. The antioxidant properties of ASG and ASR extracted using various solvents have been examined using a number of different techniques. A number of investigations found a favourable link between flavonoid and polyphenol phytoconstituent with effects of antioxidants, hinting that *A. sessilis'* antioxidant activity which might be attributable to these polyphenolic substances. Various extracts from ASG and ASR can reduce oxidants *in vitro* listed in Table respectively. Aerial ASR ethanolic extract demonstrated more antioxidant capability in comparison to the other three (the water extract of ASR and ASG with the ethanol extract of ASG) using Oxygen Radical Absorbance Capacity (ORAC), beta-carotene bleaching, Ferric Reducing Ability Assays (FRAP) and 2,2′-azino-bis-3-ethylbenzothiazoline-6-sulfonic acid (ABTS). Although the ethanol extract of ASG exhibited a higher antioxidant percentage in the 2,2-diphenyl-1-picryl-hydrazyl-hydrate (DPPH) assay, it was not significant compared to the ethanol extract of ASR. In another study conducted, activity of catalase and superoxide dismutase enzymes in human aortic endothelial cells increased following the administration of ethanol extracted whole-plant ASG at concentrations 25–200 g/mL and 50–200 g/mL respectively. These enzymes had previously decreased due to oxidative stress brought on by H_2O_2. On the other hand, Chai et al. (2016) conducted an extensive study to compare the DPPH radical scavenging activities of leaf and callus solvent fractions of ASR. By comparing the leaf and callus extracts of ASR, the callus water fraction had a greater scavenging ability with an EC_{50} value of 354.64 ± 29.12 µg/mL followed by the callus hexane fraction. With an EC_{50} value of 115.51 ± 7.56 g/mL, the leaf chloroform extract demonstrated the greatest scavenging activity of all the leaf solvent extracts. Khan et al. (2016) conducted a comparable study involving the scavenging potential of ASR flowers and leaves with the leaves showing slightly higher DPPH

activity compared to the flower, 179 ± 0.06 µg/mL and 170 ± 0.02 µg/mL IC_{50} values respectively. The ferric reduction activity of ASR leaf extracts from ethyl acetate and ethanol on hepatocellular carcinoma HepG2 cells was observed in dose-dependent manner (5-20 µg/mL). 5 µg/mL of ethyl acetate ASR leaf extract successfully suppressed oxygen radicals and lowered peroxidation of lipids triggered in HepG2 by H_2O_2[16].

Table 2: Antioxidant properties of ASG[16].

Part use	Type of extraction	Type of assays	Concentrations used	IC_{50}	Result
Aerial	Aqueous	β-carotene bleaching	NA	NA	34% antioxidant activity
		ORAC	NA	NA	0.1mmol TE/100g FW sample
		DPPH	0.02-0.1 mg/mL	NA	27.50%
		ABTS	NA	NA	NA
		FRAP	NA	NA	0.4mmol FeSO4 .7H2 O/100g FW sample
	Ethanol	β-carotene bleaching	NA	NA	36% antioxidant activity
		ORAC	NA	NA	1.5 mmol TE/ 100g FW sample
		DPPH	0.02 -0.1 mg/mL	NA	86.90%
		ABTS	NA	NA	70%
		FRAP	NA	NA	2.9 mmol FeSO4 .7H2 O/100g FW sample.
Whole plant	Ethanol	SOD activity	50, 100 and 200 µg/mL	> 400 µg/ mL	Increased effect of SOD in dose-dependent manner (120.7±3.15%, 123.2±6.67%, and 136.1±4.01% of control).
		CAT activity	25, 50 and 200 µg/mL		Increased effect CAT in a non-dose dependent manner (112.5±8.65%, 96.84±8.46%, and 110.1±1.28% of control).

Note: ASG: Alternanthera sessilis green; NA: Not available; IC50: Half maximal inhibitory concentration; DPPH: 2,2-diphenyl-1-picryl-hydrazyl-hydrate; FRAP: Feric reducing ability of plasma; ORAC: Oxygen Radical Antioxidant Capacity; ABTS: 2,2′-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid); SOD: Superoxide dismutase; CAT: Catalase.

Anti-inflammatory Activities

Inflammation in tissues is an important aspect indicating the body's response towards harmful substances. It is part a of the body's defines system that limits the invasion or elimination of harmful substances from the body. Cytokines being the inflammation regulatory molecules regulate an intricate network involving the immunological, physiological and behavioural events to generate inflammatory responses. Eicosanoids, vasodilating amines and peptides, cytokines and proinflammatory mediators are the only a few of the signalling molecules implicated in the inflammatory response. By preventing additional tissue injury, they can promote healing and reintroduce the functions of the tissues. Although it is a protective mechanism, there are complex events and pathways, which may also induce, maintain, or aggravate many diseases. Scientific investigations that discover the capability of ASG in expressing its anti-inflammatory effect are presented in Table 3. According to Babu *et al*. (2018), the cooked ASG exhibited lower anti-inflammatory properties compared to uncooked ASG when 20 mg/mL concentration of each sample was tested for protein denaturation assay. The difference in efficacy of the cooked and uncooked ASG might be due to some of the compounds denatured during the cooking process that eventually caused a reduced anti-inflammatory activity. Protein denaturation is associated with an inflammatory reaction contributing to various inflammatory disorders including diabetes, cancer and rheumatoid arthritis. Hence, a compound's apparent capacity for anti-inflammation is indicated by its ability to halt protein degradation. Anti-inflammatory activity by ethanol extracts of ASG via membrane stabilization and protein denaturation assays, *in vitro*, were revealed as well. The study showed that ASG possessed anti-inflammatory activities in all the assays in a concentration-dependent manner (100–500 ug/mL). Two other studies documented the anti-inflammatory properties of ASG in animal models having paw edema initiated by carrageenan. Given that this model of inflammation comprises a number of inflammatory mediators including bradykinin, histamine, prostaglandins, and serotonin, it is commonly employed to assess the anti-inflammatory efficacy of medicinal plants, as well as manufactured medications. Suppression of paw edema have indicated that the tested sample inhibited inflammatory mediators thus preventing inflammation. Both studies proved that aqueous, ethanolic, chloroform, and petroleum ether extracts could suppress the carrageenan-induced paw edema. Also, 200 µg/ mL concentration of ASG extracted using ethanol solvent has significantly ($p<0.05$) decreased the hyperpermeability of human aortic endothelial cells caused by TNF- alpha when compared to its control group. Evidently, ASG's significant anti-inflammatory qualities are the main reason it is employed in the traditional system of medicine. Gibberellin, an anti-inflammatory terpene, and polyphenols including p-hydroxybenzoic acid, kaempferol monosulfate, daidzein, protocatechuic acid and apigenin-6,8-di-C-D-glucopyranoside were discovered from extracted ASG stem. However, no study has determined the anti-inflammatory properties of ASR till date[16].

Table 3: Anti-inflammatory effects of ASG[16].

Part Use	Type of extraction	Type of assays	Concentrations used	Duration of treatment	IC_{50}	Result
Leaf	Cooked and extracted		NA	NA	NA	uncooked > cooked.

	with methanol.	Protein denaturation assay				
	Uncooked and extracted with methanol.					
Leaf	Ethanol	Membrane stabilization assay	100, 200, 300, 400 and 500 µg/mL	30 min	NA	73.8% rate of suppression for 500 µg/mL.
		Bovine serum denaturation assay	100, 200, 300, 400 and 500 µg/mL	23 min		75.43% rate of suppression for 500 µg/mL.
		Egg albumin denaturation assay	100, 200, 300, 400 and 500 µg/mL	20 min	NA	84.34% rate of suppression for 500 µg/mL.
Leaf	Chloroform	Edematous Paw initiated by Carrageenan.	100 and 200 mg/kg	60 min	NA	67% and 50% rate of suppression for 200 and 100 mg/kg respectively
	Petroleum ether		100 and 200 mg/kg			47% and 38% rate of suppression for 200 and 100 mg/kg respectively
Aerial	Aqueous	Edematous Paw initiated by Carrageenan.	200 and 400 mg/kg	60 min	NA	57% highest suppression rate for 400 mg/kg
	90% ethanol		200 and 400 mg/kg			64% highest inhibition rate at 400 mg/kg
Whole plant	Ethanol	64% highest inhibition rate at 400 mg/kg	25, 50, 100 and 200 µg/ mL	24 hr	NA	Impediment of enhanced permeability induced by TNF-alpha at 200 µg/mL.

Note: ASG: Alternanthera sessilis green; NA: Not available; IC50: Half maximal inhibitory concentration

CONCLUSION

Alternanthera sessilis is a valuable medicinal herb with proven antioxidant and anti-inflammatory potential. Its phytoconstituents, particularly flavonoids and phenolics, contribute to free radical scavenging, enhancement of endogenous antioxidant defence systems, and inhibition of lipid peroxidation. In addition, the plant effectively modulates inflammatory pathways by downregulating mediators such as nitric oxide, TNF-α, IL-6, and COX-2. These dual activities support its traditional use in the management of oxidative stress and inflammatory disorders. Although preclinical studies provide promising evidence, the lack of standardized extracts,

toxicity data, and well-designed clinical trials limits its current therapeutic application. Future research should focus on compound isolation, molecular mechanisms, and human studies to validate the safety and efficacy of *A. sessilis* as a potential phototherapeutic agent.

REFERENCES

1. Shehzad A, Qayyum A, Rehman R, Nadeem F, Raffi M. A review of bioactivity guided medicinal uses and therapeutic potentials of noxious weed (Alternanthera sessilis). Int. J. Chem. Biochem. Sci. 2018; 14:95-103.
2. Muniandy K, Gothai S, Tan WS, Kumar SS, Mohd Esa N, Chandramohan G, Al-Numair KS, Arulselvan P. In vitro wound healing potential of stem extract of Alternanthera sessilis. Evidence‐Based Complementary and Alternative Medicine. 2018;2018(1):3142073.
3. Bhuyan B, Baishya K, Rajak P. Effects of Alternanthera sessilis on liver function in carbon tetra chloride induced hepatotoxicity in Wister rat model. Indian Journal of Clinical Biochemistry. 2018 Apr;33(2):190-5.
4. Gayathri BM, Balasuriya K, de S. Gunawardena GP, Rajapakse RJ, Ranjith H, Dharmaratne W. Toxicological studies of the water extract of green leafy vegetable sessile joy weed (Alternanthera sessilis). Current science. 2006 Dec 10:1517-20.
5. Walter TM, Merish S, Tamizhamuthu M. Review of Alternanthera sessilis with reference to traditional Siddha medicine. International Journal of Pharmacognosy and Phytochemical Research. 2014;6(2):249-54.
6. Chandrashekhar K. Ethnobotanical and Phyto-Pharmacological Overview of Matsyakshi (Alternanthera Sessilis R. Br. Ex DC.). J. Ayu. Her. Med. 2019;5(4):152-5.
7. Gunasekera L. Sessile joy weed (Alternanthera sessilis): a popular leafy vegetable in South East Asia but federal noxious weed in USA. In Proceedings of the 16th Australian Weeds Conference, Cairns Convention Centre, North Queensland, Australia 2008 May 18 (pp. 347-348).
8. Roy A, Saraf S. Antioxidant and antiulcer activities of an Ethnomedicine: Alternanthera sessilis. Research Journal of Pharmacy and Technology. 2008;1(2):75-9.
9. Mondal H, Saha S, Awang K, Hossain H, Ablat A, Islam MK, Jahan IA, Sadhu SK, Hossain MG, Shilpi JA, Uddin SJ. Central-stimulating and analgesic activity of the ethanolic extract of Alternanthera sessilis in mice. BMC complementary and alternative medicine. 2014 Oct 15;14(1):398.
10. Gothai S, Muniandy K, Esa NM, Subbiah SK, Arulselvan P. Anticancer potential of Alternanthera sessilis extract on HT-29 human colon cancer cells. Asian Pacific Journal of Tropical Biomedicine. 2018 Aug 1;8(8):394-402.
11. Niraimathi KL, Sudha V, Lavanya R, Brindha P. Biosynthesis of silver nanoparticles using Alternanthera sessilis (Linn.) extract and their antimicrobial, antioxidant activities. Colloids and surfaces B: bio interfaces. 2013 Feb 1; 102:288-91.
12. Murugan SB, Reshma A, Deepika R, Balamurugan S, Sathishkumar R. Antioxidant capacities of Amaranthus tristis and Alternanthera sessilis: A comparative study. Journal of Medicinal Plants Research. 2013 Aug 21;7(30):2230-5.
13. Rao P. Ayurvedic view of Alternanthera sessilis Linn. with special reference to Matsyakshi: A brief review. SF J Herb Med. 2018;2(1).
14. Pharmacognosy Sharma A, Sanadhya I, Bhot M, Varghese J. Evaluation of Antioxidant

Potential of Alternanthera sessilis (L.) DC. Research Journal of and Phytochemistry. 2013;5(4):194-8.

15. Shahabuddin S, Othman A, Ismail A. Impact of drying and extraction method on antioxidant capacity, phenolic compounds and beta lain pigment of Alternanthera sessilis red. Indian Journal of Natural Products and Resources (IJNPR) [Formerly Natural Product Radiance (NPR)]. 2023 Oct 25;14(3):490-9.
16. Ragavan O, Chan SC, Goh YE, Lim V, Yong YK. Alternanthera sessilis: a review of literature on the phytoconstituents, traditional usage and pharmacological activities of green and red cultivar. Pharmacognosy Research. 2023;15(4).

HOW TO CITE: Vageesh Revadigar*, Aishwarya K. P., Chiranthana H. R., Nisha S. S., Charan M., Kishan K. N., Alternanthera Sessilis' A Possible Promising Herb for The Cure of Chronic Diseases Mediated by Oxidative Damage, Int. J. of Pharm. Sci., 2025, Vol 3, Issue 9, 1033-1044 https://doi.org/10.5281/zenodo.17084201