Available online on 15.08.2026 at http://jddtonline.info

Journal of Drug Delivery and Therapeutics

Open Access to Pharmaceutical and Medical Research

Open Access Full Text Article

Review Article

Phytochemistry and Neuroprotective Potential of *Bombax costatum* Pellegr. and Vuillet: Bridging Traditional West African Medicine and Modern Neuropsychopharmacology

Arthur Armand Arnaud Daboné *[1], Samson Guenné [1,2], Modeste Traore [1], Ghislain T. Kobendé [2], Nabere Ouattara [1,3], Moussa Compaoré [1], Adama Hilou [1], Martin Kiendrebéogo [1]

[1] Laboratory of Applied Biochemistry and Chemistry (LABIOCA), Université Joseph KI-ZERBO, 03 P.O. Box: 7021, Ouagadougou 03, Burkina Faso

[2] Laboratory of Biochemistry, Biotechnology, Food Technology and Nutrition (LABIOTAN), Université Joseph KI-ZERBO, 03 P.O. Box: 7021, Ouagadougou 03, Burkina Faso

[3] Université Daniel Ouezzin Coulibaly, BP 176 Dédougou, Burkina Faso

Article Info:

Article History:

Received 13 May 2026
Reviewed 25 June 2026
Accepted 18 July 2026
Published 15 August 2026

Cite this article as:

Daboné AAA, Guenné S, Traore M, Kobendé GT, Ouattara N, Compaoré M, Hilou A, Kiendrebéogo M, Phytochemistry and Neuroprotective Potential of Bombax costatum Pellegr. and Vuillet: Bridging Traditional West African Medicine and Modern Neuropsychopharmacology, Journal of Drug Delivery and Therapeutics. 2026; 16(8):145-156 *DOI: https://doi.org/10.22270/jddt.v16i8.7888*

For Correspondence:

Arthur Armand Arnaud Daboné, Laboratory of Applied Biochemistry and Chemistry (LABIOCA), Université Joseph KI-ZERBO, 03 P.O. Box: 7021, Ouagadougou 03, Burkina Faso

Abstract

Background: Neuropsychiatric disorders, including epilepsy, anxiety, and depression, represent a major public health burden in West Africa, where traditional medicine remains the primary therapeutic option for many patients. *Bombax costatum* Pellegr. & Vuillet (Malvaceae), commonly known as the red kapok or false kapok tree, is widely used in traditional West African pharmacopoeia for these conditions.

Objective: This narrative review aimed to synthesize the ethnobotanical, phytochemical, and preclinical pharmacological data on *Bombax costatum* and to evaluate its neuroprotective potential.

Methods: A comprehensive literature search was conducted following PRISMA 2020 guidelines in PubMed, ScienceDirect, Google Scholar, AGORA, and Lotus Base, covering the period from 1964 to mai 2026. After removal of duplicates and application of inclusion/exclusion criteria, 86 distinct documents were selected and analyzed using thematic synthesis.

Results: *Bombax costatum* is a multipurpose species with more than 86 documented traditional uses, mainly for epilepsy, anxiety, depression, and hepatic disorders. Major bioactive compounds identified include epicatechin (isolated from root bark), lupeol (stem bark), along with high levels of polyphenols and flavonoids. Preclinical studies demonstrated significant anticonvulsant effects (PTZ and MES models), antidepressant-like activity (chronic mild stress model), anxiolytic properties (elevated plus maze), and antioxidant activities, primarily through GABAergic modulation, monoaminergic enhancement, and reduction of oxidative stress. The plant also exhibited hepatoprotective effects with a good safety profile (LD_{50} > 5,000 mg/kg).

Conclusion: *Bombax costatum* shows promising neuroprotective potential that aligns with its traditional uses. However, current evidence is limited to preclinical studies. Future research should prioritize standardization of extracts, pharmacokinetic studies, and rigorous clinical trials to confirm efficacy and safety in humans.

Keywords: *Bombax costatum*, neuroprotection, epilepsy, anxiety, depression, epicatechin, lupeol, traditional African medicine, oxidative stress, GABAergic

INTRODUCTION

In West Africa, neuropsychiatric disorders such as epilepsy, anxiety, and depression represent a significant public health burden, often managed through traditional medicine due to limited access to conventional pharmacological treatments [1,2]. *Bombax costatum* Pellegr. & Vuillet (Malvaceae), commonly known as the red kapok or false kapok tree, is a multipurpose woody species widely used in traditional pharmacopoeias across Burkina Faso, Benin, Mali, and Nigeria [2–4].

This deciduous tree, characteristic of the Sudano-Sahelian savannas, holds considerable cultural and socio-economic importance. The calyces are primarily used as a food thickener in sauces, providing substantial nutritional value, especially during the lean season (representing 35–59% of wild vegetables consumed in some areas of Burkina Faso) [5,6]. Additionally, the roots, stem bark, leaves, and flowers are traditionally employed to treat epilepsy, convulsive disorders, anxiety, depressive states, fever, oedema, and hepatic disorders [7–9]. More than 46 distinct uses have been documented, highlighting the species' high ethnobotanical and socio-economic value [1,10].

Despite its longstanding traditional use, the scientific basis supporting these therapeutic applications remains only

partially elucidated. Recent studies have identified key bioactive compounds such as lupeol in the stem bark and epicatechin in the root bark, along with promising anticonvulsant, antidepressant-like, anxiolytic, and antioxidant activities in preclinical models [9,11,12]. Hepatoprotective effects and low acute toxicity (LD_{50} > 5000 mg/kg) further support its safety profile [13,14].

Given the high prevalence of neuropsychiatric disorders in the region and the need to scientifically valorize local medicinal resources, a critical evaluation of the neuroprotective potential of *Bombax costatum* is highly relevant.

The objective of this narrative review is to synthesize the available ethnobotanical, phytochemical, and preclinical pharmacological data on *Bombax costatum*, to identify the proposed mechanisms of action, and to outline perspectives for future research, particularly clinical studies.

METHODOLOGY

This narrative review was conducted in accordance with the PRISMA 2020 guidelines for systematic literature searches, while using a thematic synthesis approach suitable for an integrative ethnopharmacological review [15].

Literature Search and Study Selection A comprehensive search was performed across five major databases: PubMed, ScienceDirect, Google Scholar, AGORA, and Lotus Base, covering publications from 1964 to December 2025. The search strategy combined the terms ("*Bombax costatum*" OR "*Bombax costatum* Pellegr. & Vuillet") with keywords using Boolean operators: AND (phytochemistry OR neuroprotective OR anticonvulsant OR antidepressant OR anxiolytic OR ethnobotany OR pharmacology OR traditional use OR propagation OR conservation OR nutrition). Additional records were identified by hand-searching the reference lists of relevant articles and key reviews.

PRISMA Flow Diagram Details The study selection process is summarized in the PRISMA 2020 flow diagram (Fig. 1). Briefly:

- Identification: A total of 345 records were identified through database searching (PubMed: 68; ScienceDirect: 89; Google Scholar: 112; AGORA: 28; Lotus Base: 48).
- Screening: After removal of 122 duplicates, 223 records remained for title and abstract screening. Of these, 167 records were excluded (not relevant to *B. costatum*, wrong species, or non-scientific documents).
- Eligibility: A total of 56 full-text articles were assessed for eligibility.
- Included: Finally, 86 distinct documents (including 30 additional records identified through reference lists and other sources) met the inclusion criteria and were included in the qualitative synthesis.

Inclusion and Exclusion Criteria

- Inclusion: Peer-reviewed articles (original research or reviews) specifically on *Bombax costatum* reporting ethnobotanical, phytochemical, preclinical pharmacological, nutritional, ecological, propagation, or socio-economic data; full-text available in English or French.
- Exclusion: Studies on other *Bombax* species (e.g., *B. ceiba*, *B. malabaricum*) without clear taxonomic distinction, non-peer-reviewed documents, conference abstracts, editorials, and studies with insufficient methodological details.

Data were extracted using a standardized form and synthesized thematically.

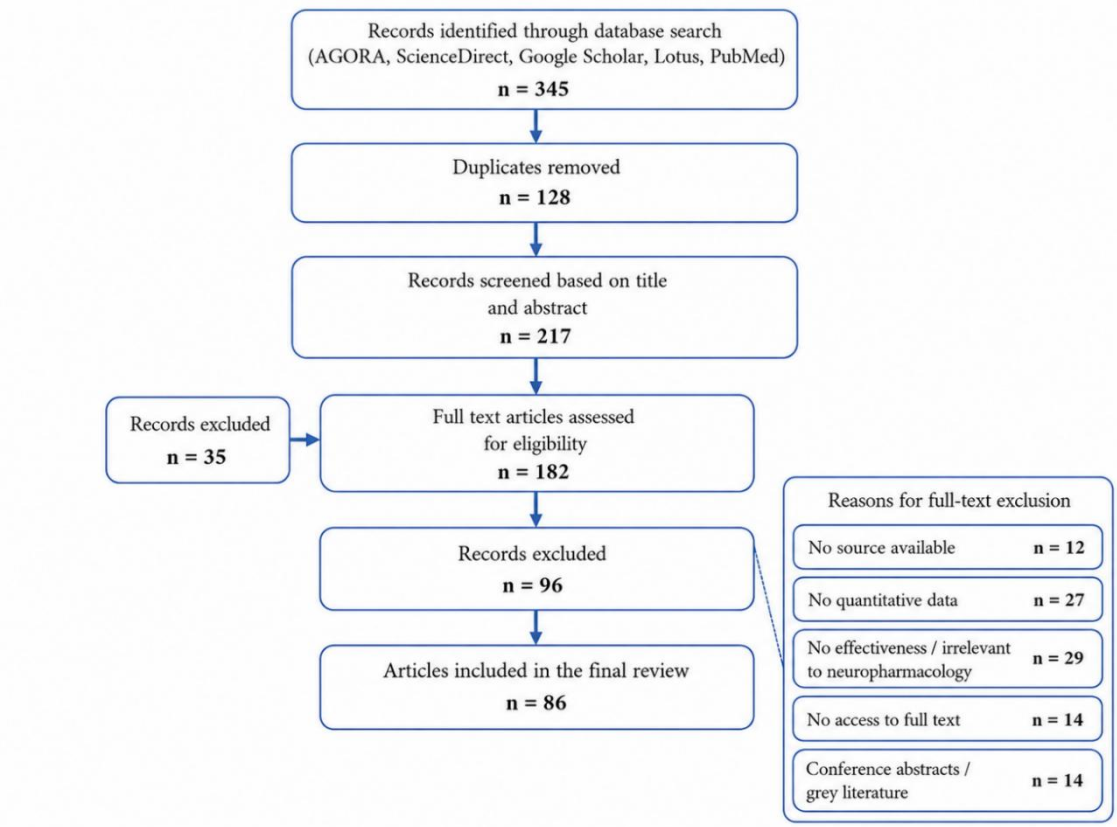

Figure 1: Search results from different sources (Scorpus, Google scholar and PubMed)

ETHNOBOTANY AND TRADITIONAL USES

Bombax costatum Pellegr. & Vuillet, commonly known as red kapok or "false kapok tree" (locally called *Goungourou*, *Kantakara*, or *Denguéré*), is a highly valued multipurpose tree in the Sudano-Sahelian savannas of West Africa [1,10,16–18]. It plays a central role in traditional medicine, nutrition, and local economies, particularly in Burkina Faso, Benin, Mali, and Nigeria.

Geographical Distribution and Cultural Importance

The species is widely distributed across the Sudanian and Sudano-Guinean zones. Ethnobotanical surveys indicate high use values and relative frequency of citation, especially in rural communities where access to modern healthcare is limited [1,10,18,19].

Traditional Medicinal Uses

Different plant parts are used for a wide range of conditions:

- **Root and stem bark**: Primarily used for epilepsy, convulsions, anxiety, depression, and nervous disorders. Decoctions or powdered bark are administered orally or as baths [7,9,12,20,20,21].
- **Leaves**: Employed for fever, inflammation, malaria, and general pain relief [1,9,22–28].
- **Flowers and calyces**: Used as food thickeners in sauces and for the treatment of hepatic disorders, anemia, and fatigue[5,20,29].
- **Whole plant**: In combination with other herbs for mental health conditions and as a general tonic.

More than **46 distinct uses** have been documented across studies, with food and medicinal categories ranking highest [1,30]. In Benin (Pendjari Biosphere Reserve), the calyces are sold in local markets and represent an important source of income[1]. In Burkina Faso, the species is frequently cited for neuropsychiatric and hepatic ailments [31–33].

Nutritional Role

The calyces are consumed as vegetables, representing 35–59% of wild edible plants consumed during the lean season in rural Burkina Faso [5,24,29]. They are rich in minerals and used to thicken sauces, providing both nutritional and cultural value.

Other Uses

The tree provides fodder for livestock, firewood, fiber for ropes, and shade in agroforestry systems. Its wood is used for carving and construction [18,34].

Conservation Status and Local Perceptions

Local communities perceive a decline in *Bombax costatum* populations due to overexploitation, agricultural expansion, and climate change[30,35–37]. This has led to increased interest in its domestication through vegetative propagation.

The ethnobotanical data strongly justify scientific investigation of its neuroprotective properties, as traditional knowledge has guided the selection of plant parts and indications now validated in preclinical models.

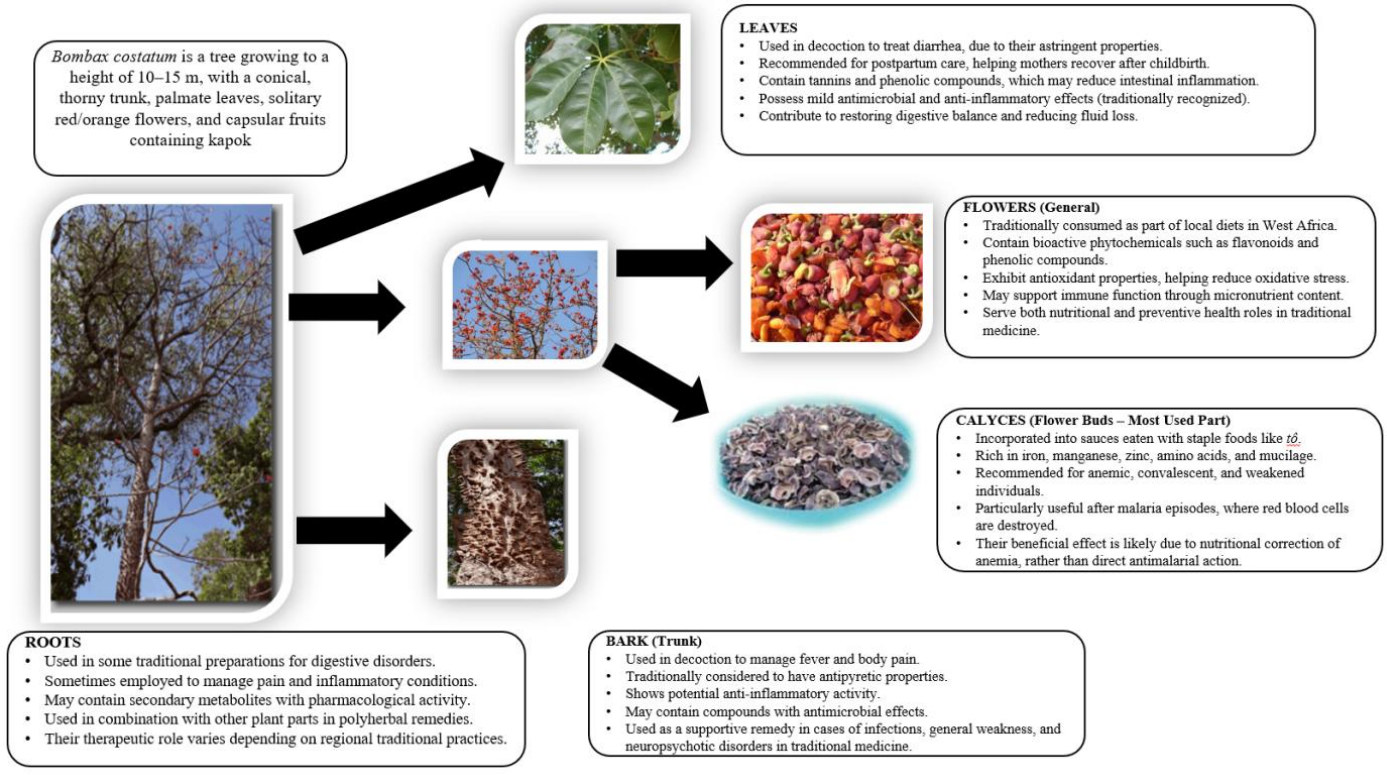

Figure 2: Images of different parts of the *Bombax costatum* plant (images taken from the original *Bombax* plant).

PHYTOCHEMISTRY

Bombax costatum Pellegr. & Vuillet is a rich source of secondary metabolites, with a phytochemical profile dominated by polyphenols, flavonoids, triterpenoids, steroids, alkaloids, saponins, and polysaccharides. Extensive studies on different plant parts (root bark, stem bark, leaves, flowers, and calyces) have led to the isolation and characterization of several bioactive compounds [9,11,38–41].

Root Bark: The most detailed phytochemical investigation was conducted by Abba et al. (2021) [41] who isolated and fully characterized epicatechin (a flavan-3-ol) from the root bark. The compound was obtained through successive maceration with 80% methanol, followed by liquid-liquid partitioning and purification via silica gel column chromatography and Sephadex LH-20 gel filtration. Structural elucidation was achieved using melting point (259–262°C), UV-Vis (λmax 231 and 289 nm), IR spectroscopy, and extensive 1D/2D-NMR experiments. Key NMR signals include:

- ^{1}H-NMR (δ ppm): 4.80 (d, J=2.0 Hz, H-2), 4.15 (m, H-3), 2.88 (dd, J=4.5, 16.5 Hz, H-4a), 2.72 (dd, J=2.5, 16.5 Hz, H-4b), and aromatic protons at 5.90–7.05 ppm.
- ^{13}C-NMR confirmed the flavan skeleton with characteristic signals for C-2 (79.8 ppm), C-3 (66.8 ppm), and C-4 (28.5 ppm). COSY, HSQC, and HMBC correlations unambiguously confirmed the cis-2,3 stereochemistry typical of epicatechin [41].

Stem Bark: Lupeol, a pentacyclic triterpenoid, was isolated from the ethyl acetate fraction of the stem bark [11,21]. Other compounds reported include β-sitosterol, stigmasterol, and various phenolic acids. The ethyl acetate fraction demonstrated significant anti-hepatofibrotic activity, linked to its high triterpenoid and flavonoid content[42].

Flowers and Calyces: High levels of total polyphenols (up to 245.6 mg GAE/g), flavonoids (up to 89.4 mg QE/g), and carotenoids were quantified in flower extracts using different drying methods (shade, sun, and oven drying) [41]. The calyces are particularly rich in mucilage and pectins (rhamnose and arabinose as dominant sugars), contributing to their traditional use as food thickeners [1,43,44]. Antioxidant capacity was confirmed by DPPH, ABTS, and Trolox equivalent assays [8,12].

Leaves: Phytochemical screening revealed the presence of tannins, saponins, cardiac glycosides, and alkaloids. Quantitative studies showed notable levels of minerals (Ca, Mg, Fe, Zn) alongside secondary metabolites [43,45,46].

Overall Profile: More than 25 compounds have been identified across all studies. The phytochemical diversity supports the traditional uses for neurological disorders through antioxidant, anti-inflammatory, and neuromodulatory pathways. However, standardization remains challenging due to variations linked to geographic origin, season, and extraction solvent [47,48].

Table 1: Phytochemical composition of *Bombax costatum* by plant part.

Plant Part	Major Phytochemical Constituents	Ref
Root Bark	Epicatechin (flavan-3-ol), flavonoids, phenolic compounds	49
Stem Bark	Triterpenoids (lupeol, β-amyrin), β-sitosterol, stigmasterol, phenolic acids, saponins	11,12,43
Leaves	Tannins, saponins, cardiac glycosides, alkaloids, flavonoids, phenolic acids	5,8
Flowers	Polyphenols (up to 245.6 mg GAE/g), flavonoids, carotenoids, flavones	8,24
Calyces	Mucilage, pectins (rhamnose, arabinose), polyphenols, minerals (Ca, Mg, Fe, Zn)	5,24,43
Seeds	Fatty acids (oleic, linoleic, palmitic, stearic, lignoceric acid), polysaccharides	5,13

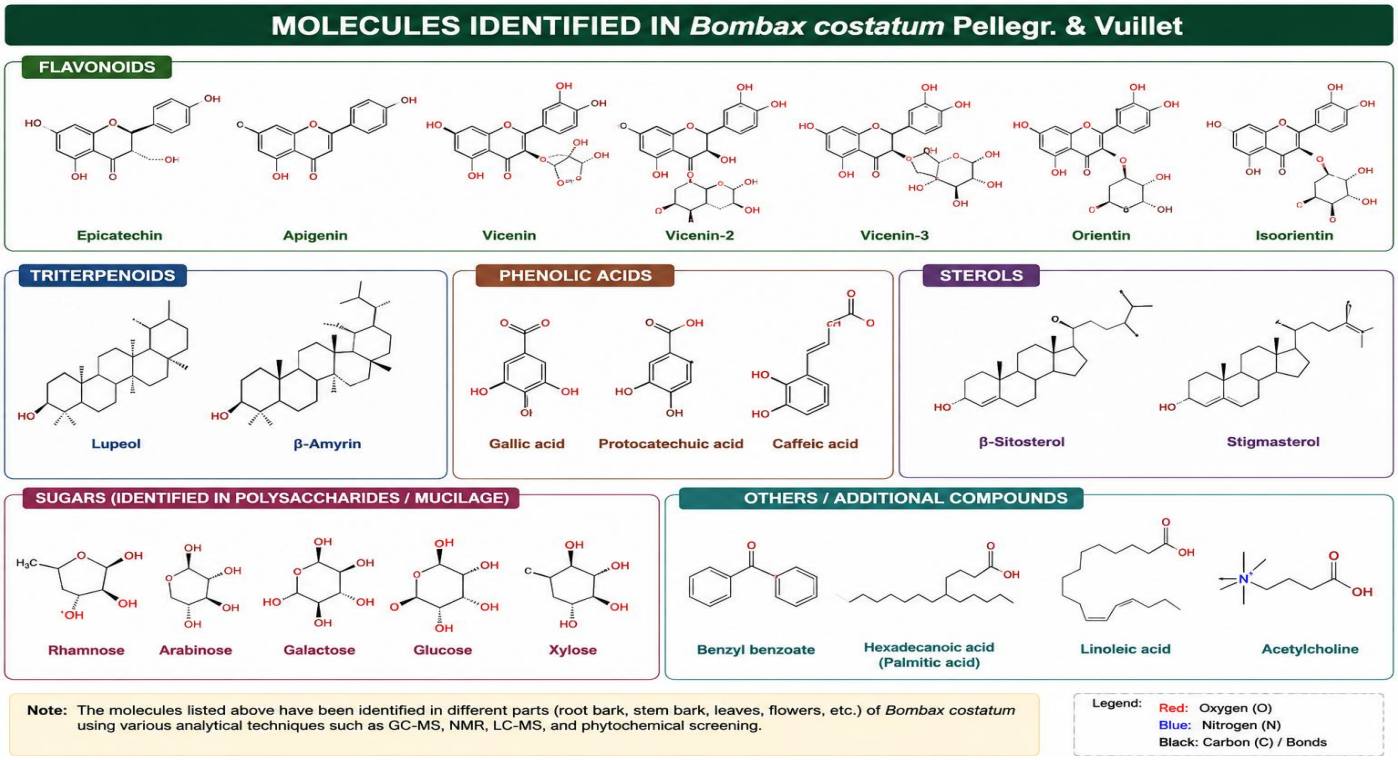

Figure 3: Molecules identified in *Bombax costatum* Pellegr. & Vuillet

NEUROPHARMACOLOGICAL ACTIVITIES

Preclinical studies on *Bombax costatum* Pellegr. & Vuillet strongly support its traditional applications in West African medicine for epilepsy, anxiety, depression, and other central nervous system disorders [7,12,41,47,50–54]. The observed effects are linked to its rich phytochemical profile, particularly flavonoids (epicatechin), triterpenoids (lupeol), and polyphenols with antioxidant and neuromodulatory properties.

Anticonvulsant Activity

In the pentylenetetrazole (PTZ)-induced seizure model in mice, the hydroethanolic root bark extract (100–400 mg/kg, p.o.) significantly prolonged seizure latency, reduced seizure severity and duration, and lowered mortality rate in a dose-dependent manner[7,11,50]. The extract increased brain GABA levels while decreasing malondialdehyde (MDA) concentration in the hippocampus, indicating GABAergic enhancement and lipid peroxidation inhibition. In the maximal electroshock (MES) test, the same extract offered protection comparable to standard drugs [28]. The isolated epicatechin from root bark is thought to contribute significantly through its antioxidant capacity and potential interaction with GABA-A receptors [41]. Additional studies using kindling models further confirmed the extract's ability to suppress epileptic progression [20,55,56].

Antidepressant-like Effects

In the chronic mild stress (CMS) model in rats, aqueous and hydroethanolic stem bark extracts (200–400 mg/kg) significantly reduced immobility time in the Forced Swim Test (FST) and Tail Suspension Test (TST), while improving sucrose preference [8,30,38]. Neurochemical analyses revealed elevated serotonin (5-HT) and dopamine levels in the prefrontal cortex and hippocampus. Antioxidant markers improved markedly: increased SOD and CAT activities, elevated glutathione (GSH) levels, and reduced MDA and nitrite levels. These effects suggest a multi-target mechanism involving monoaminergic enhancement and oxidative stress reduction [12,57].

Anxiolytic and Sedative Properties

Methanol and aqueous extracts of leaves and roots demonstrated significant anxiolytic activity in the Elevated Plus Maze (EPM) and Light/Dark Box tests. Animals treated with 200–400 mg/kg spent more time and made more entries into open arms, with effects partially reversed by flumazenil, suggesting GABA-benzodiazepine receptor involvement [51,52]. The extracts also reduced stress-induced hyperthermia. These activities correlate with the high flavonoid and phenolic content documented in multiple studies [8,41,58].

Anti-inflammatory and Neuroprotective Mechanisms

Extracts inhibited pro-inflammatory pathways (COX-2, NF-κB) and showed acetylcholinesterase (AChE) inhibitory activity, relevant for both neuroprotection and cognitive enhancement [8,51]. Hepatoprotective effects (reduction of AST, ALT, ALP, and bilirubin in acetaminophen and CCl4 models) further support potential benefits on the liver-brain axis in neuropsychiatric conditions [59,60].

Safety and Toxicity Profile

Acute oral toxicity studies in rodents reported LD_{50} values greater than 5000 mg/kg, classifying the extracts as practically non-toxic [41,53]. Subchronic administration in Wistar rats and broiler chickens showed no significant alterations in hematological parameters (RBC, WBC, hemoglobin), liver/kidney function tests, or histopathology at therapeutic doses [11,38,53,61,62]. In summary, the neuropharmacological evidence from PTZ, MES, CMS, EPM, and oxidative stress models consistently validates the traditional uses of *Bombax costatum*. The principal

mechanisms include antioxidant activity, GABAergic modulation, monoamine enhancement, and anti-inflammatory effects, largely attributable to epicatechin, lupeol, and total polyphenols. Nevertheless, all current data are preclinical, and well-designed clinical trials are urgently needed.

Table 3: Major phytochemical classes, proposed mechanisms of action, and observed pharmacological effects of *Bombax costatum*

Phytochemical Class	Main Compounds	Proposed Mechanisms of Action	Observed / Reported Effects	Ref
Flavonoids	Epicatechin, apigenin, vicenin and derivatives	Antioxidant (ROS scavenging, ↑ SOD, ↑ CAT, ↓ MDA), GABAergic modulation, monoaminergic enhancement	Anxiolytic-like, antidepressant-like, anticonvulsant, neuroprotective	8,9,48,62, 63
Triterpenoids	Lupeol, β-amyrin	Antioxidant, COX-2/NF-κB inhibition, membrane stabilization, neuroprotection	Anticonvulsant, anti-inflammatory, hepatoprotective, neuroprotective	11,47,49, 64–66
Phenolic acids	Gallic, protocatechuic, caffeic acids	Strong antioxidant (free radical scavenging)	Antioxidant, anti-inflammatory	48,67–69
Sterols	β-Sitosterol, stigmasterol	Membrane stabilization, antioxidant	Neuroprotective, anti-inflammatory	11
Polysaccharides / Mucilage	Rhamnose, arabinose-based pectins	Immunomodulatory, antioxidant	Food thickener, potential hepatoprotective	70

Note: Mechanisms are primarily proposed based on preclinical observations. Direct molecular target studies remain limited.

Table 4: Summary of key preclinical pharmacological studies on *Bombax costatum*

Plant Part	Extract Type	Dose (mg/kg)	Animal Model	Key Findings	Ref
Root Bark	Hydroethanolic	100–400	PTZ-induced seizures (mice)	Delayed seizure onset, ↓ mortality, ↑ GABA, ↓ MDA	7
Stem Bark	Aqueous	200–400	Chronic Mild Stress (CMS) – rats	↓ immobility (FST & TST), ↑ 5-HT & dopamine, antioxidant	12
Root / Leaves	Methanolic / Aqueous	200–400	Elevated Plus Maze (EPM) – mice	↑ open arm time & entries, anxiolytic-like effect	52
Stem Bark	Hydroethanolic	100–400	Maximal Electroshock (MES)	Protection against seizures	7
Stem Bark	Aqueous	200–400	Acetaminophen / CCl_4 toxicity	Hepatoprotective (↓ AST, ALT, ALP, bilirubin)	53,59
Various	Methanolic	-	In vitro	AChE inhibition, antioxidant activity	8

Note: All in vivo studies were conducted in rodent models. Results are promising but require confirmation in clinical studies.

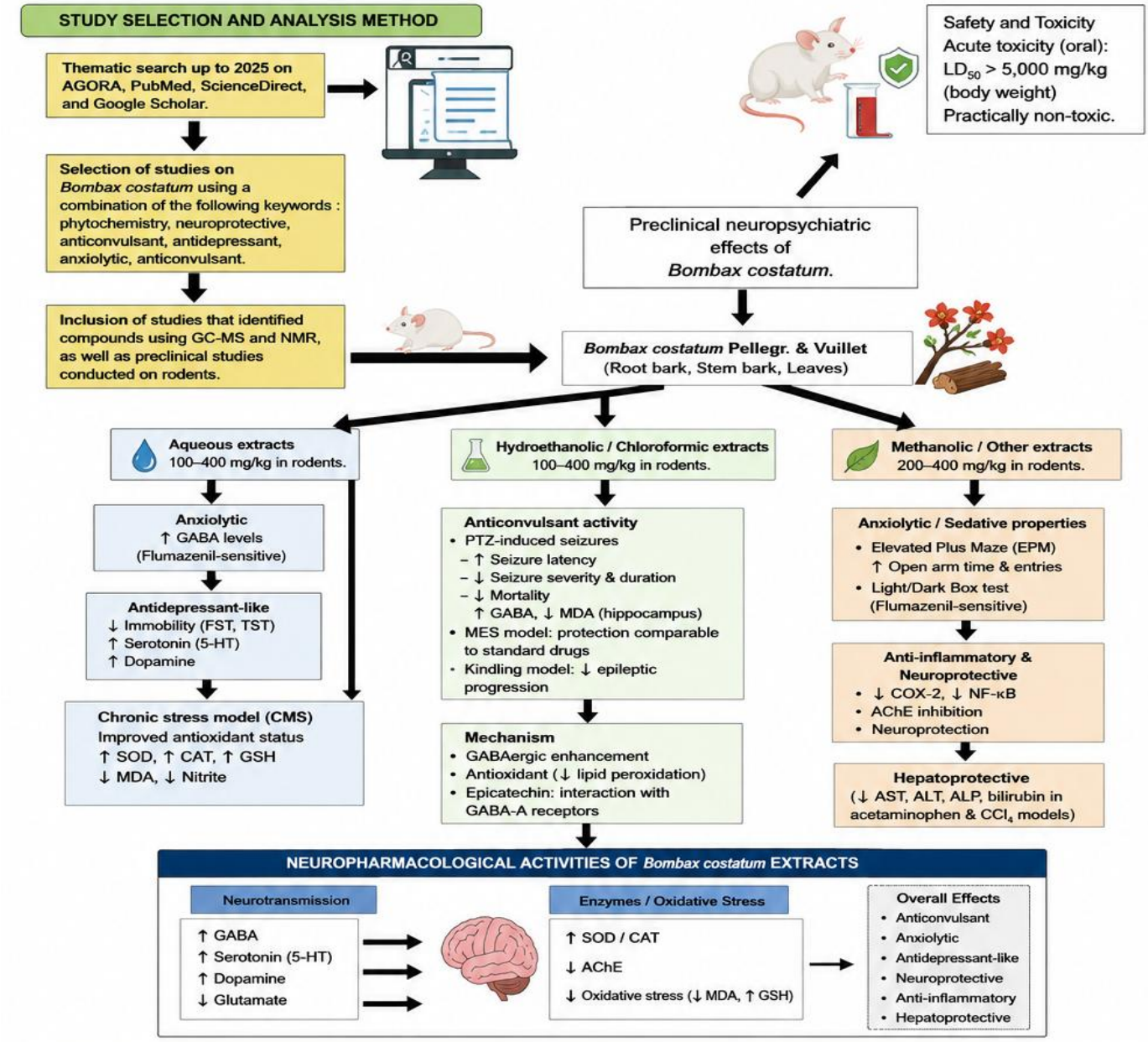

Figure 4: Study selection process and neuropharmacological activities of *Bombax costatum* Pellegr. & Vuillet extracts in preclinical models.

DISCUSSION

The accumulated evidence from 86 documents analyzed in this review demonstrates that *Bombax costatum* possesses a remarkable phytochemical diversity and promising preclinical neuropharmacological activities that largely corroborate its extensive traditional use in West Africa for epilepsy, anxiety, depression, and related disorders [8,10,11,13,50,55,58,62,66,71–82].

The presence of key bioactive compounds such as epicatechin (root bark), lupeol (stem bark), and high levels of polyphenols and flavonoids provides a strong scientific basis for the observed effects. Epicatechin, fully characterized by detailed NMR, IR, and UV data [41], is likely a major contributor to the antioxidant, GABAergic, and monoaminergic activities reported across multiple studies. Lupeol further supports anti-inflammatory and neuroprotective properties [11,53,83].

The anticonvulsant effects in PTZ and MES models, antidepressant-like activity in the CMS model, and anxiolytic properties in EPM tests consistently show dose-dependent efficacy (100–400 mg/kg) through multiple mechanisms: enhancement of GABA transmission, elevation of serotonin and dopamine, and potent reduction of oxidative stress (↑SOD, CAT, GSH; ↓MDA) [7,9,12,41,57,84]. These multi-target actions represent a distinct advantage over single-target synthetic drugs, potentially offering better efficacy with fewer side effects in complex neuropsychiatric conditions.

Furthermore, the hepatoprotective effects documented in several studies [53,62,85] suggest additional benefits via the liver-brain axis, which is increasingly recognized in the pathophysiology of depression and epilepsy. The excellent safety profile (LD_{50} > 5000 mg/kg) and lack of significant toxicity in subchronic studies strengthen the therapeutic potential of this species [53,61,63].

However, important limitations must be acknowledged. All pharmacological data remain preclinical (rodent models), with no clinical trials identified. There is significant variability in extract preparation, plant part used, and geographic origin, which complicates standardization. Taxonomic confusion with related *Bombax* species in some older literature also requires caution [15]. Challenges for clinical translation include bioavailability, blood-brain barrier permeability, formulation issues, and regulatory requirements for herbal medicines.

From a conservation perspective, *Bombax costatum* faces threats from overexploitation, climate change, and land-use changes in the Sudano-Sahelian zone [4,29–31,86]. Sustainable propagation techniques, particularly vegetative multiplication by root cuttings, offer promising solutions for domestication and ex-situ conservation [5,29].

Bombax costatum represents a valuable African medicinal plant with strong preclinical evidence supporting its neuroprotective potential. Future research should prioritize standardized extracts, pharmacokinetic studies, and well-designed clinical trials to validate its efficacy and safety in humans.

CONCLUSION

Bombax costatum Pellegr. & Vuillet emerges as a promising multipurpose medicinal plant of the Sudano-Sahelian zone with significant ethnobotanical importance and scientifically supported neuroprotective potential. This review, based on the analysis of 86 distinct documents, highlights the consistency between traditional uses in Burkina Faso, Benin, Mali, and Nigeria for epilepsy, anxiety, depression, and hepatic disorders, and the preclinical pharmacological evidence.

The phytochemical richness of the species, particularly the presence of epicatechin in the root bark, lupeol in the stem bark, and high polyphenol content in flowers and leaves, provides a credible mechanistic foundation for its observed anticonvulsant, antidepressant-like, anxiolytic, antioxidant, and anti-inflammatory activities. These effects are mediated through multiple pathways including GABAergic modulation, monoaminergic enhancement (serotonin and dopamine), and strong antioxidant defense system activation. The excellent safety profile (LD_{50} > 5000 mg/kg) further supports its therapeutic candidacy.

However, despite these encouraging preclinical results, several critical gaps remain. No clinical trials have yet been conducted to confirm efficacy and safety in humans. Issues related to extract standardization, bioavailability, blood-brain barrier penetration, and long-term toxicity need to be addressed before clinical development. Additionally, taxonomic confusion with related *Bombax* species in some literature calls for stricter botanical authentication in future studies.

From a sustainability perspective, *Bombax costatum* faces increasing anthropogenic and climatic pressures in West Africa. Vegetative propagation techniques (especially root segment cuttings) and agroforestry integration offer viable pathways for its conservation and domestication.

In summary, *Bombax costatum* represents a valuable African phytotherapeutic resource with strong potential for the development of new treatments for neuropsychiatric disorders. Future research should prioritize standardized extract development, pharmacokinetic/pharmacodynamic studies, and rigorous clinical trials. Such efforts could contribute significantly to improving mental health care in resource-limited settings while promoting the valorization and sustainable use of African biodiversity.

Acknowledgment: Special thanks are extended to all traditional healers and local communities in Burkina Faso who shared their valuable knowledge on the traditional uses of *Bombax costatum.*

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflicts of interest: The authors declare that they have no competing interests.

Authors' contributions: All authors have read and approved the final manuscript. The individual contributions were as follows: A.A.A. Daboné : conducted literature search, data curation, formal analysis, investigation, visualization, and wrote the original draft of the manuscript; S. Guenné : conceived and designed the study, contributed to methodology, project administration, supervision, and writing - review and editing; M. Traoré: contributed to formal analysis and data interpretation; G.T. Kobendé : contributed to formal analysis and data interpretation; N. Ouattara : provided resources and contributed to writing – review and editing; M. Compaoré : contributed to data interpretation and writing – review and editing; A. Hilou: contributed to project administration, validation, and writing – review and editing; M. Kiendrebéogo: contributed to project administration, validation, and writing – review and editing.

Data availability: All data supporting the findings of this study are derived from publicly available published literature cited in the references. Additional information is available from the corresponding author upon reasonable request.

Ethics approval: Not applicable. This article is a narrative review based solely on published data.

REFERENCES

1. Assogba GA, Fandohan AB, Salako VK, Assogbadjo AE. Usages de Bombax costatum (Malvaceae) dans les terroirs riverains de la Réserve de biosphère de la Pendjari, République du Bénin. Bois for trop. 2017;333:17. https://doi.org/10.19182/bft2017.333.a31465

2. Belem B, Boussim JI, Bellefontaine R, Guinko S. Stimulation du drageonnage de Bombax costatum par blessure des racines au Burkina Faso. BOIS & FORETS DES TROPIQUES. 2008;295:71-79. https://doi.org/10.19182/bft2008.295.a20394

3. 3. Traoré L, et al. Effets combinés des facteurs... - Google Scholar. Accessed May 26, 2026. https://scholar.google.com/scholar?hl=fr&as_sdt=0%2C5&q=3.%09Traor%C3%A9+L%2C+et+al.+Effets+combin%C3%A9s+des+fa

cteurs+anthropiques+et+climatiques+sur+l%E2%80%99%C3%A9tat+des+populations+de+trois+esp%C3%A8ces+ligneuses+vuln%C3%A9rables+dont+Bombax+costatum.+Scheresse.+2020%3B31%282%29%3A89-101.+&btnG=

4. Assogba GA, Fandohan AB, Gandji K, Salako KV, Adomou A, Assogbadjo AE. Impacts des affectations des terres sur la structure des peuplements de Bombax costatum en zone soudanienne du Bénin. Bois for trop. 2021;348:37-48. https://doi.org/10.19182/bft2021.348.a36743

5. Glew RH, Vanderjagt DJ, Lockett C, et al. Amino acid, fatty acid, and mineral composition of 24 indigenous plants of Burkina Faso. Journal of food composition and analysis. 1997;10(3):205-217. https://doi.org/10.1006/jfca.1997.0539

6. NOMA ALH, IBRAHIM MLA, ABDOU MY, IDE ARD, INOUSSA MM, TANIMOUNE A. Caractéristiques dendrométriques et structurales de Bombax costatum Pellegr. & Vuillet dans les terroirs riverains de la Réserve Partielle de Faune de Dosso (RPFD). Afrique SCIENCE. 2025;27(2):106-116.

7. Nazifi AB, Ahmed A, Hassan FI, Mohammed N, Danbala AA, Odoma S. Comparative Anticonvulsant Activity of Leaf, Stem Bark and Root Bark Extracts of Bombax costatum Pellegr. and Vuillet in Acute Models of Epilepsy: doi. org/10.26538/tjnpr/v4i10. 30. Tropical Journal of Natural Product Research (TJNPR). 2020;4(10):844-849. https://doi.org/10.26538/tjnpr/v4i10.30

8. Antwi-Adjei M, Yeboah KO, Oppong-Kyekyeku J, Osafo N. Inflammation Modulating Activity of the Hydroethanol Stem Bark Extract of Bombax costatum in Murine Models. Vonakis B, ed. Scientifica. 2022;2022:1-10. https://doi.org/10.1155/2022/6882147 PMid:36046123 PMCid:PMC9424023

9. Bila HA, Dauda G, Olorukooba AB, Stephen D, Imam KI. In vitro antimalarial activity of phytochemicals from Bombax costatum via inhibition of β-hematin formation. Discov Chem. 2026;3(1):64. https://doi.org/10.1007/s44371-026-00517-8

10. Belem B, Boussim JI, Bellefontaine R, Guinko S. Utilisations et conservation de Bombax costatum au Burkina Faso. Published online 2012. Accessed May 26, 2026. https://agritrop.cirad.fr/566414

11. Apinega LA, Akpulu PS, Aliyu MM, Dlama S, Mohammed A, Zakari L. Phytochemical Characterization, Compound Isolation, and Anticonvulsant Evaluation of Methanol Stem Bark Extract of Bombax Costatum (Bombacaceae). Faculty of Natural and Applied Sciences Journal of Applied Chemical Science Research. 2025;2(3):1-8. https://doi.org/10.63561/jacsr.v2i3.800

12. Léa Blondelle KD, Simplice FH, Hervé Hervé NA, et al. Antidepressant, anti-amnesic and vasoprotective effect of Bombax costatum Pellegr. & Vuillet aqueous stem bark extract on chronic mild unpredictable stress induced in rat. Journal of Ethnopharmacology. 2022;293:115315. https://doi.org/10.1016/j.jep.2022.115315 PMid:35487448

13. Ambi AA, Abubakar A, Hassan MZ. Acute toxicity studies and antibacterial evaluation of Bombax costatum stem bark extracts. Journal of Pharmacy & Bioresources. 2018;15(2):139-147. doi:10.4314/jpb.v15i2.6 https://doi.org/10.4314/jpb.v15i2.6

14. Ali BH, Mohammed I, Muhammed MA, et al. Evaluation of In vivo Antiplasmodial Activity of the Methanol Root Bark Extract and Fractions of Bombax costatum (Bombacacea) in Plasmodium berghei-Infected Mice. Tropical Journal of Natural Product Research. 2022;6(6). Accessed May 26, 2026. https://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=26160684&AN=157906920&h=H%2FzoTPc67JfdolC02IQBExAVxkA3hEtTibNXZx9OCCnBBmq1usJCQU7r04wiNiwBSplld4dcuATpKPFjygqCqA%3D%3D&crl=c

15. Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. bmj. 2021;372. Accessed May 26, 2026. https://www.bmj.com/content/372/bmj.n71.short https://doi.org/10.1136/bmj.n71 PMid:33782057 PMCid:PMC8005924

16. Zerbo I, Salako KV, Hounkpèvi A, Zozoda D, Kakaï RG, Thiombiano A. Ethnobotanical knowledge and conservation of Bombax costatum Pellegr. and Vuillet: an overexploited savanna tree species. Trees, Forests and People. 2022;10:100356. https://doi.org/10.1016/j.tfp.2022.100356

17. Traore LCG, Sanou S, Roessler R, Sanon HO, Bougouma-Yameogo V, Schlecht E. Digestibilité de quelques ligneux fourragers préférés par les ovins dans la zone nord-soudanienne du Burkina Faso. Journal of Animal & Plant Sciences. Published online 2025:11921-11933.

18. Traore L, Sambare O, Savadogo S, Ouedraogo A, Thiombiano A. Effets combinés des facteurs anthropiques et climatiques sur l'état des populations de trois espèces ligneuses vulnérables. International Journal of Biological and Chemical Sciences. 2020;14(5):1763-1785. https://doi.org/10.4314/ijbcs.v14i5.21

19. Ouédraogo I, Nacoulma BMI, Ouédraogo O, Hahn K, Thiombiano A. Productivité et valeur économique des calices de Bombax costatum Pellegr. & Vuillet en zone soudanienne du Burkina Faso. Bois & Forêts des Tropiques. 2014;319:31-41. https://doi.org/10.19182/bft2014.319.a20550

20. Oraebosi MI, Good GM. Bombax costatum enhances piroxicam's efficacy: Possible involvement of alpha-2 adrenergic receptor, opioidergic and arachidonic pathways. In: Annales Pharmaceutiques Françaises. Vol 80. Elsevier; 2022:253-260. Accessed May 26, 2026. https://www.sciencedirect.com/science/article/pii/S0003450921001577 https://doi.org/10.1016/j.pharma.2021.10.004 PMid:34756927

21. Bello AM, Malgwi IS, Adegoke SH, Abubakar A, Ibrahim BM, Chiroma SM. Oral acute toxicity study on stem bark extracts of Bombax costatum Pellegr. and Vuillet on wistar albino rats. Bull Natl Res Cent. 2022;46(1):254. https://doi.org/10.1186/s42269-022-00944-4

22. Kerharo J, Adam JG. Plantes médicinales et toxiques des Peul et des Toucouleur du Sénégal. Journal d'agriculture traditionnelle et de botanique appliquée. 1964;11(10):384-444. https://doi.org/10.3406/jatba.1964.2785

23. Assogbadjo AE. Gnido Amandine Assogba1 Adandé Belarmain Fandohan1, 2, 3 Valère Kolawolé Salako3. BOIS ET FORÊTS DES TROPIQUES. 2017;(333):3.

24. Nacoulma OG. Plantes médicinales et pratiques médicales traditionnelles au Burkina Faso: cas du plateau central. Faculté des Sciences et Techniques, Université de Ouagadougou. 1996;320:42-53.

25. Lacombe B, Nignan S. Des plantes et de leurs usages dans un village bwaba. Études sur la jachère dans le Sud-Ouest du Burkina Faso. 211.

26. Buratti M. Des couleurs à vocation médicinale: regards croisés entre Occident et Afrique. Les couleurs dans les arts d'Afrique de la Préhistoire à nos jours. Published online 2020. Accessed May 26, 2026. https://www.torrossa.com/gs/resourceProxy?an=4868247&publisher=FZ2990#page=34

27. SIMMY PL, SANGARE A, BALDE MA, CAMARA A, TRAORE SM. De l'usage de la pharmacopée à la conservation de la diversité floristique: Quelle place pour la connaissance indigène Manon en Guinée? Pharmacopée et médecine traditionnelle africaine. 2023;21(2):09-19.

28. Bla KB, Trebissou JND, Bidie AP, Assi YJ, Zihiri-Guede N, Djaman AJ. Étude ethnopharmacologique des plantes antipaludiques utilisées chez les Baoulé-N'Gban de Toumodi dans le Centre de la Côte d'Ivoire. Journal of Applied Biosciences. 2015;85:7775-7783. https://doi.org/10.4314/jab.v85i1.4

29. Ouedraogo I, Nacoulma BMI, Ouedraogo O, Hahn K, Thiombiano A. Productivity and economic value of the Bombax costatum Pellegr. & Vuillet calyx in Burkina Faso's Sudanian zone. Published online 2014. Accessed May 26, 2026. https://www.cabidigitallibrary.org/doi/full/10.5555/20143177855

30. Traore L, Sambare O, Savadogo S, Ouedraogo A, Thiombiano A. Effets combinés des facteurs anthropiques et climatiques sur l'état des populations de trois espèces ligneuses vulnérables. International Journal of Biological and Chemical Sciences. 2020;14(5):1763-1785. https://doi.org/10.4314/ijbcs.v14i5.21

31. Belem B, Boussim JI, Bellefontaine R, Guinko S. Stimulation du drageonnage de Bombax costatum par blessure des racines au Burkina Faso. BOIS & FORETS DES TROPIQUES. 2008;295:71-79. https://doi.org/10.19182/bft2008.295.a20394

32. Paré S, Savadogo P, Tigabu M, Ouadba JM, Odén PC. Consumptive values and local perception of dry forest decline in Burkina Faso, West Africa. Environ Dev Sustain. 2010;12(2):277-295. https://doi.org/10.1007/s10668-009-9194-3

33. Paré S. Land Use Dynamics, Tree Diversity and Local Perception of Dry Forest Decline in Southern Burkina Faso, West Africa. 2008. Accessed May 26, 2026. https://pub.epsilon.slu.se/id/eprint/1843/contents

34. AVAKOUDJO HGG. Impact of climate change on the distribution of Bombax costatum Pellegr. & Vuillet in Mali, West Africa. Trees, Forests and People. Published online 2023. Accessed May 26, 2026. https://www.academia.edu/download/96201339/1_s2.0_S2666719322001650_main.pdf

35. Coulibaly A, Avakoudjo HGG, Idohou R, Vodounnon EJ, Diallo S, Cherif M. Impact of climate change on the distribution of Bombax costatum Pellegr. & Vuillet in Mali, West Africa. Trees, Forests and People. 2023;11:100359. https://doi.org/10.1016/j.tfp.2022.100359

36. Zéphirin OH, Yougouda H, Roger T, et al. Vegetative propagation of Bombax costatum Pellegr. & Vuillet (Malvaceae) by root segments cuttings: effects of mother tree diameter and origin of cuttings. American Journal of Agriculture and Forestry. 2019;7(6):248-258. https://doi.org/10.11648/j.ajaf.20190706.12

37. Adam AA, Doke DA, Hansen RR, Lykke AM, Abagale FK, Quainoo AK. Assessment of indigenous knowledge on propagation of native trees in the agro-ecological zone of Ghana. Agroforest Syst. 2025;99(8):241. https://doi.org/10.1007/s10457-025-01318-1

38. Bello AM, Malgwi IS, Adegoke SH, Abubakar A, Ibrahim BM, Chiroma SM. Oral acute toxicity study on stem bark extracts of Bombax costatum Pellegr. and Vuillet on wistar albino rats. Bull Natl Res Cent. 2022;46(1):254. https://doi.org/10.1186/s42269-022-00944-4

39. Simplice FH, Kamda JLD, Guedang NSD, et al. Anticholinesterase, antioxidative and neuroprotective effects of hydroethanolic extracts of Guiera Senegalensis JF gmel. Leaves on scopolamine induced Alzheimer's disease in wistar rat models. Jundishapur Journal of Natural Pharmaceutical Products. 2024;19(19):e156481. https://doi.org/10.5812/jjnpp-147530

40. Orhan I, Kartal M, Naz Q, et al. Antioxidant and anticholinesterase evaluation of selected Turkish Salvia species. Food Chemistry. 2007;103(4):1247-1254. https://doi.org/10.1016/j.foodchem.2006.10.030

41. Nigerian Research Journal of Chemical Sciences - University Of Nigeria Nsukka. Accessed May 26, 2026. https://www.unn.edu.ng/nigerian-research-journal-of-chemical-sciences/

42. جمیلو, پان علیو, آناکا, نوحو. Anti-hepatofibrotic effect of ethyl acetate fraction of Bombax costatum Pellgr. EtVuillet stem bark against CCl4-induced liver fibrosis in mice. journal of Medicinal Herbs (journal of herbal drugs). 2(1):1.

43. Abou B, Kouadio B, Viviane YYC, Ange KGKN, Valaire DRJ, Houphouet Y. Mineralogical, Phytochemical, and Nutritional Study of the Calyces of Bombax Buonopozense P. Beauv (Malvaceae) and Bombax Costatum Pellegr. & Vuillet (Malvaceae). Asian Journal of Applied Chemistry Research. 2026;17(2):71-84. https://doi.org/10.9734/ajacr/2026/v17i2391

44. Kabré B, Belem-Ouédraogo M, Tiétiambou FRS, Zon AO, Ouédraogo A. A comprehensive review on the uses and nutritional potentials of wild edible plants species for food security in sub-Saharan Africa. Discover Food. Published online 2026. Accessed May 26, 2026. https://link.springer.com/content/pdf/10.1007/s44187-026-00822-2_reference.pdf https://doi.org/10.1007/s44187-026-00822-2

45. El-Din MIG, Youssef FS, Ashour ML, Eldahshan OA, Singab NB. Subfamily Bombacoideae: Traditional Uses, Secondary Metabolites, Biological. Wild Plants. 2021;338. Accessed May 26, 2026. https://www.academia.edu/download/68989564/Rai_2020_Wild_Plants_treasures_of_raditional_healers.pdf#page=347 https://doi.org/10.1201/9781003020134-18

46. Minakari M, Molaei M, Shalmani HM, et al. Liver steatosis in patients with chronic hepatitis B infection: host and viral risk factors. European journal of gastroenterology & hepatology. 2009;21(5):512-516. https://doi.org/10.1097/MEG.0b013e328326792e PMid:19190500

47. de Souza JSP, da Silva OLT, Rocha HAO. Phytochemistry and Pharmacology of Bombax and Pseudobombax: Evidence-Based Insights and Current Limitations. Published online 2026. Accessed May 26, 2026. https://www.preprints.org/manuscript/202602.1557

48. Boly R, Kindo A, Traore TK, et al. Polyphenol content, antioxidant and antiproliferative effects of a plant mixture composed of four medicinal plants with hepatoprotective potential. Afr J Pharm Pharmacol. 2023;17(9):182-190. https://doi.org/10.5897/AJPP2023.5369

49. Bila HA, Dauda G, Olorukooba AB, Stephen D, Imam KI. In vitro antimalarial activity of phytochemicals from Bombax costatum via inhibition of β-hematin formation. Discov Chem. 2026;3(1):64. https://doi.org/10.1007/s44371-026-00517-8

50. Buba HS, Garba SH, Zirahei JV, Chiroma SM, Dibal NI. Bombax costatum Pellegr. & Vuillet attenuates pentylenetetrazol-induced seizure and cognitive impairment in rats via inhibition of oxidative stress. Nutrire. 2024;49(1):28. https://doi.org/10.1186/s41110-024-00271-w

51. Wanbara N, Taiwe GS, Njapdounke JSK, Sidiki N, Nloga AMN, Bum EN. Anxiolytic and antipyretic properties of the root aqueous extract of Bombax costatum Pellegr. et Vuillet.(Bombacaceae) in mice: implication of behavioural and neurochemical approaches. Biological and Pharmaceutical Bulletin. 2021;44(1):140-150. https://doi.org/10.30574/gscbps.2021.15.2.0133

52. Oraebosi MI, Good GM. Bombax costatum enhances piroxicam's efficacy: Possible involvement of alpha-2 adrenergic receptor, opioidergic and arachidonic pathways. In: Annales Pharmaceutiques Françaises. Vol 80. Elsevier; 2022:253-260. Accessed May 26, 2026. https://www.sciencedirect.com/science/article/pii/S0003450921001577 https://doi.org/10.1016/j.pharma.2021.10.004 PMid:34756927

53. Garba MH. The Potency of Bombax costatum Methanol Stem-bark Extract as a Hepato-curative Agent on Acetominophen Induced Hepato Toxicity in Wistar Albino Rats. International Research Journal of Gastroenterology and Hepatology. 2019;2(1):1-11.

54. Abdullahi MI, Nasir I, Musa AM, et al. Preclinical Studies of a Multi-Component Herbal Therapy (Rogeria adenophylla J. Gay ex Delile, Bombax costatum Pellegr. & Vuillet, Diospyros mespiliformis Hochst. Ex A. DC. and Entada africana Guill. & Perr.) for the Management of Snake Envenomation. Zagazig Journal of Pharmaceutical Sciences. 2025;34(1):31-47. https://doi.org/10.21608/zjps.2025.358220.1087

55. Kinda PT, Guenne S, Tindano B, et al. Studying some neuroprotective effects of Calotropis procera extracts against scopolamine- induced neuropschiatric comorbidities in a rodent model of epilepsy. Rom Biotechnol Lett. 2021;26(6):3114-3119. https://doi.org/10.25083/rbl/26.6/3114-3119

56. Ishaku AA, Bello AM, Dibal NI, Chiroma MS. The extract of Bombax costatum bark improves depression and epileptic seizures in rats. Iranian Journal of Toxicology. 2023;17(2):95-104. https://doi.org/10.32598/IJT.17.2.969.2

57. Abubakar K, Alkali YI, Kabir MM, et al. Anxiolytic and antidepressant effects of methanol stem bark extract of Bombax buonopozense P. Beauv.(Bombacaceae). Aust J Sci Technol. 2018;2:61-65.

58. Daboné AAA, Guenné S, Traore M, et al. Anti-amnesic and Antioxidant Potentials of Bombax costatum for Mental Illness Treatment: A Traditional Medicinal Plant from Burkina Faso. International Journal of Biochemistry Research & Review. 2026;35(3):21-32. https://doi.org/10.9734/ijbcrr/2026/v35i31120

59. Abubakar UD, Barminas JT. Evaluation of Bombax costatum calyx hydrogel as a potential insulin delivery system. safety. 2017;50:3. https://doi.org/10.9734/BJAST/2017/32935

60. نوحو, آناکا, علیو, پان, جمیلو. Anti-hepatofibrotic effect of ethyl acetate fraction of Bombax costatum Pellgr. EtVuillet stem bark against CCl4-induced liver fibrosis in mice. journal of Medicinal Herbs (journal of herbal drugs). 2(1):1.

61. Ambi AA, Abubakar A, Hassan MZ. Acute toxicity studies and antibacterial evaluation of Bombax costatum stem bark extracts. Journal of Pharmacy & Bioresources. 2018;15(2):139-147. https://doi.org/10.4314/jpb.v15i2.6

62. Department of Pharmacology and Therapeutics, Bayero University, Kano, Nigeria., Mohammed N, Yaro A, Nazifi A, Department of Pharmacology and Therapeutics, Bayero University, Kano, Nigeria. Bombax costatum Pellegr. and Vuillet Stem Bark Extract Prevents Paracetamol and Carbon Tetrachloride-Induced Liver Injury in Rats. TJNPR. 2018;2(5):220-226. https://doi.org/10.26538/tjnpr/v2i5.4

63. Bello AM, Malgwi IS, Adegoke SH, Abubakar A, Ibrahim BM, Chiroma SM. Oral acute toxicity study on stem bark extracts of Bombax costatum Pellegr. and Vuillet on wistar albino rats. Bull Natl Res Cent. 2022;46(1):254. https://doi.org/10.1186/s42269-022-00944-4

64. Stem bark chloroform extract of Bombax costatum Pellegr. & Vuillet exhibit anticonvulsant and neuroprotective effects in pentylenetetrazole-induced seizures in rats - ScienceDirect. Accessed May 28, 2026. https://www.sciencedirect.com/science/article/abs/pii/S0003450922001213

65. Apinega LA, Dlama S, Ladan Z, et al. Isolation and Characterisation of Lup-20 (29)-en-3β-ol from the Methanol Stem Bark Extract of Bombax costatum pv (Bombacacea): doi. org/10.26538/tjnpr/v2i6. 6. Tropical Journal of Natural Product Research (TJNPR). 2018;2(6):290-292. https://doi.org/10.26538/tjnpr/v2i6.6

66. Ngassia Wanbara, Germain Sotoing Taiwe, Jacqueline Stephanie Kameni Njapdounke, Neteydji Sidiki, Alexandre Michel Njan Nloga, Elisabeth Ngo Bum. Anxiolytic and antipyretic properties of the root aqueous extract of Bombax costatum Pellegr. et Vuillet. (Bombacaceae) in mice: Implication of behavioural and neurochemical approaches. GSC Biol and Pharm Sci. 2021;15(2):140-150. doi:10.30574/gscbps.2021.15.2.0133 https://doi.org/10.30574/gscbps.2021.15.2.0133

67. Dudonné S, Vitrac X, Coutière P, Woillez M, Mérillon JM. Comparative Study of Antioxidant Properties and Total Phenolic Content of 30 Plant Extracts of Industrial Interest Using DPPH, ABTS, FRAP, SOD, and ORAC Assays. J Agric Food Chem. 2009;57(5):1768-1774. https://doi.org/10.1021/jf803011r PMid:19199445

68. Orhan I, Kartal M, Tosun F, Şener B. Screening of various phenolic acids and flavonoid derivatives for their anticholinesterase potential. Zeitschrift für Naturforschung C. 2007;62(11-12):829-832. https://doi.org/10.1515/znc-2007-11-1210 PMid:18274286

69. Bravo L. Polyphenols: Chemistry, Dietary Sources, Metabolism, and Nutritional Significance. Nutrition Reviews. 2009;56(11):317-333. https://doi.org/10.1111/j.1753-4887.1998.tb01670.x PMid:9838798

70. Gernah DI, Gbakaan P. Effect of potassium carbonate (K2CO3) on the viscosity and related physico-chemical properties of genger (Bombax costatum) powder during storage. Current Research in Nutrition and Food Science Journal. 2013;1(1):77-82. https://doi.org/10.12944/CRNFSJ.1.1.08

71. Assogba GA, Fandohan AB, Salako VK, Assogbadjo AE. Usages de Bombax costatum (Malvaceae) dans les terroirs riverains de la Réserve de biosphère de la Pendjari, République du Bénin. Bois & Forêts des Tropiques. 2017;333:17-29. https://doi.org/10.19182/bft2017.333.a31465

72. Konaté K, Kiendrébéogo M, Ouattara MB, et al. Antibacterial potential of aqueous acetone extracts from five medicinal plants used traditionally to treat infectious diseases in Burkina Faso. Current Research Journal of Biological Sciences. 2011;3(5):435-442.

73. Guenné S, Nabèrè O, Hilou A, Millogo J, Nacoulma O. Antioxidant, Enzyme Inhibition Activities And Polyphenol Contents Of Three Asteraceae Species Used In Burkina Faso Traditionally Medicine. International Journal of Pharmacy and Pharmaceutical Sciences. 29-50. Published online January 1, 2011.

74. Buba HS, Garba SH, Zirahei JV, Chiroma SM, Dibal NI. Bombax costatum Pellegr. & Vuillet attenuates pentylenetetrazol-induced seizure and cognitive impairment in rats via inhibition of oxidative stress. Nutrire. 2024;49(1):28. https://doi.org/10.1186/s41110-024-00271-w

75. Ali BH, Mohammed I, Muhammed MA, et al. Evaluation of In vivo Antiplasmodial Activity of the Methanol Root Bark Extract and Fractions of Bombax costatum (Bombacacea) in Plasmodium berghei-Infected Mice. Tropical Journal of Natural Product Research. 2022;6(6):926. doi:10.26538/tjnpr/v6i6.18

76. Antwi-Adjei M, Yeboah KO, Oppong-Kyekyeku J, Osafo N. Inflammation Modulating Activity of the Hydroethanol Stem Bark Extract of Bombax costatum in Murine Models. Scientifica. 2022;2022(1):6882147. https://doi.org/10.1155/2022/6882147 PMid:36046123 PMCid:PMC9424023

77. Kinda P, Zerbo P, Guenné S, Compaoré M, Ciobica A, Kiendrebeogo M. Medicinal Plants Used for Neuropsychiatric Disorders Treatment in the Hauts Bassins Region of Burkina Faso. Medicines. 2017;4(2):32. https://doi.org/10.3390/medicines4020032 PMid:28930246 PMCid:PMC5590068

78. Sourabie S, Zerbo P, Yonli D, Boussim JI. Connaissances traditionnelles des plantes locales utilisées contre les bio-agresseurs des cultures et produits agricoles chez le peuple Turka au Burkina Faso. Int J Bio Chem Sci. 2020;14(4):1390-1404. doi:10.4314/ijbcs.v14i4.18 https://doi.org/10.4314/ijbcs.v14i4.18

79. Moshi MJ, Kagashe GAB, Mbwambo ZH. Plants used to treat epilepsy by Tanzanian traditional healers. Journal of Ethnopharmacology. 2005;97(2):327-336. https://doi.org/10.1016/j.jep.2004.11.015 PMid:15707773

80. Cai YZ, Mei Sun, Jie Xing, Luo Q, Corke H. Structure-radical scavenging activity relationships of phenolic compounds from traditional Chinese medicinal plants. Life Sciences. 2006;78(25):2872-2888. doi:10.1016/j.lfs.2005.11.004 https://doi.org/10.1016/j.lfs.2005.11.004 PMid:16325868

81. El-Din MIG, Youssef FS, Ashour ML, Eldahshan OA, Singab ANB. Subfamily Bombacoideae: Traditional Uses, Secondary Metabolites, Biological Activities, and Mechanistic Interpretation of the Anti-Inflammatory Activity of its species. In: Wild Plants. CRC Press; 2020:338-400. Accessed April 20, 2026. https://www.taylorfrancis.com/chapters/edit/10.1201/9781003020134-18/subfamily-bombacoideae-mariam-gamal-el-din-fadia-youssef-mohamed-ashour-omayma-eldahshan-abdel-nasser-singab https://doi.org/10.1201/9781003020134-18

82. Honfo H, Tovissodé FC, Gnanglè C, et al. Traditional knowledge and use value of bamboo in southeastern Benin: implications for sustainable management. Ethnobotany Research and Applications. 2015;14:139-153. https://doi.org/10.17348/era.14.0.139-153

83. Orhan DD, Orhan N, Ergun E, Ergun F. Hepatoprotective effect of Vitis vinifera L. leaves on carbon tetrachloride-induced acute liver damage in rats. Journal of ethnopharmacology. 2007;112(1):145-151. https://doi.org/10.1016/j.jep.2007.02.013 PMid:17391882

84. Hastir G, Singh AP, Singh AP. ANTIDEPRESSANT AND ANXIOLYTIC ACTIVITY OF FICUS RELIGIOSA ADVENTITIOUS ROOT EXTRACTS IN MICE. Int J Curr Pharm Sci. Published online July 15, 2025:60-65. https://doi.org/10.22159/ijcpr.2025v17i4.7010

85. Mohammed N, Anaka Y, Musa A, Yaro J. Anti-hepatofibrotic effect of ethyl acetate fraction of Bombax costatum Pellgr. & Vuillet stem bark against CCl4-induced liver fibrosis in mice. J Med Herb. 2021;12(2)

86. Plantes sahéliennes adaptées dans la récupération des terres dégradées et leurs usages pour la santé : cas de la province du Soum au Nord du Burkina Faso. JAnimPlant Sci. Published online July 31, 2019:6767-6783. https://doi.org/10.35759/JAnmPlSci.v41-1.4