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# Medicinal Plants Used For The Treatment Of Ocular Diseases In Nigeria: A Review

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***Abstract***
*Globally, medicinal plants are used to treat various diseases, including eye conditions. Nigeria is rich in diverse medicinal plants; however, there is limited documented information on their use in the treatment of ocular diseases. This review therefore provides up-to-date information on medicinal plants used to treat ocular diseases. This may be beneficial for the development of accessible, cheap, new, and effective ocular treatments. In this study, materials were obtained from online databases such as Google Scholar, MDPI, PubMed, Sciencedirect, Springer, and Wiley, and only papers published in English were included. The study identified 23 medicinal plants used for the treatment of ocular diseases, with the most commonly used parts being the leaves, seeds, fruits, roots, flowers, bulbs, and stems. These plants are used to treat impaired vision, eye pain, inflammation, eye irritation, night blindness, conjunctivitis, and to reduce or delay glaucoma and cataract. One of the plants, Abrus precatorius, was associated with toxic effects on the eyes and should be used with extreme caution. The information gathered indicates that these plants have potential for the development of new and more effective ocular medications. However, it is important to establish quality control and safety profiles, and to elucidate the mechanisms of action of these plants in the management, prevention and treatment of various ocular diseases.*

***Keywords:*** *Ocular diseases, Medicinal plants, Toxicity, Nigeria*

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## I. Introduction

The eye is a sensitive, delicate sensory organ responsible for light perception and vision. Eye health is essential for maintaining a high quality of life (Salazar-Gómez et al., 2023). Ocular diseases include a number of conditions affecting the eye, ranging from common issues that will not cause vision impairment such as dry eye and conjunctivitis, to more serious conditions that can lead to vision loss or blindness such as cataracts, glaucoma, retinal damage and corneal opacity (WHO, 2019). These ocular diseases can significantly affect vision and may result in irreversible blindness and reduced visual acuity. In 2010, the WHO reported that 253 million people were living with visual impairment, with 39 million classified as blind, and projections suggest that this number could triple by 2050 (WHO, 2012; Bourne et al., 2017). Koberlein et al. (2013) estimated that the economic impact of visual impairment would exceed $70 billion in developed countries. The World Health Organization also indicates that eye conditions are disproportionately more common in low- and middle-income countries, as well as among medically underserved populations (WHO, 2019).

These diseases pose a significant threat to life and can cause substantial psychological and economic consequences for both affected individuals and their families. A major concern is the sedentary lifestyle of people with visual impairment, which leads to complete dependence on guide for mobility (Timothy et al., 2025). Their ability to earn a living and their employability are reduced to the lowest possible level. As a result, the affected person often becomes a burden to their relatives. Furthermore, this situation can cause emotional and psychological distress, which may lead to further complications and, ultimately, death (Timothy et al., 2025). It is important to note that many factors contributing to vision impairment can be prevented or treated (Andary et al., 2025).

Although traditional orthodox medications used for treatment and management are therapeutically beneficial, various options exist to improve visual function, including eyeglasses, contact lenses, topical treatments, and laser surgeries (Knauer and Pfeiffer, 2008). However, these treatments are not without potential side effects. Prolonged use of ocular medications may cause ocular surface diseases, such as dry eye syndrome and ocular irritation, or even damage sensitive ocular tissues (Hashemi et al., 2012). In addition, although laser surgeries are effective, they carry inherent risks, such as infection and procedural errors (Bertone et al., 2007).

The adverse effects associated with conventional treatments have prompted researchers to explore medicinal plants as a viable alternative for managing and treating these diseases. This preference may arise from their minimal or negligible side effects, accessibility, patient acceptability, improved tolerability, cost-effectiveness, and established use in traditional medicine (Mahmoud et al., 2023). Scientific studies indicate that

over 80% of the global population relies on these plants and their natural derivatives as a dependable source of primary healthcare (Licciardi and Underwood, 2011), particularly in regions such as Africa and Asia. At present, these plants are considered an inexhaustible reservoir of innovative pharmacological agents for the development of new medications and bioactive foods. For example, many conventional medications, including artemisinin and quinine (used for malaria), vinblastine (for cancer treatment), morphine and codeine (opioid analgesics), and aspirin (a non-steroidal anti-inflammatory drug), are derived from medicinal plants (Ukwubile et al., 2023).

Numerous researchers have provided substantial scientific evidence from experimental studies indicating that medicinal plants can prevent vision loss and reverse visual impairment (Cho et al., 2004; Tang et al., 2011). Currently, preventive and therapeutic approaches for ocular diseases are among the most significant global health issues. The health complications and economic consequences associated with these diseases have led many researchers to develop a strong interest in various strategies, including the use of medicinal plants as a therapeutic option to alleviate these conditions and their related challenges. This review therefore presents current information on medicinal plants used in the treatment of eye diseases. This may be beneficial for the development of accessible, novel, and cost-effective treatments for ocular diseases.

## II. Materials And Methods

The articles were sourced from various databases, including Google Scholar, MDPI, Springer, Scopus, ScienceDirect, PubMed, and Wiley. Relevant keywords and their combinations were used, such as "Medicinal plants used in the treatment of eye diseases or ocular diseases in Nigeria", "Medicinal plants", "Nigeria", "eye diseases", "ocular diseases", "bioactive compounds", "ocular diseases", "impaired vision", "conjunctivitis", "glaucoma", and "cataract". Only articles published in English were considered for this study.

## III. Description Of The Plants

*Allium ascalonicum*, known as shallot, is an important economic crop and spice belonging to the family Amaryllidaceae (Moldovan et al., 2022). Its common name in Yoruba is Alubosa-elewe, and in Hausa, it is known as Albasa maigo. It is used to treat onchocerciasis (Elufioye and Ogunlude, 2018) and impaired vision (Ogunlesi et al., 2008). The major bioactive compounds include p-coumaric acid and quercetin (Ratseewo et al., 2025). It possesses anti-cancer, anti-diabetic, antimicrobial, anti-inflammatory and antioxidant activities (Ruksiriwanich et al., 2022) Table 1.

*Abrus precatorius* L. belongs to the Leguminosae family and is widely distributed in tropical and subtropical regions, such as China, India, and Nigeria (Qian et al., 2022). It is locally known as Iwere-jeje in Yoruba, Anya nnunu in Igbo, and Idon Zakara in Hausa. The aqueous extract of the leaves is used for the treatment of cataract (Okoli et al., 2007). The seed is extremely toxic and can cause death if used (Qian et al., 2022) Table 1.

*Ageratum conyzoides* L. (Asteraceae) is a herb widely distributed in tropical and subtropical regions (Yadav et al., 2019). It is known as Imiesu in Yoruba, Ula Ujula or Akwukwo Nwa Osi N'aka in Igbo, and Ahenhen or Baren Gona in Hausa. It is used to treat leprosy, skin disorders, insomnia, rheumatism, headaches, toothache, pneumonia (Yadav et al., 2019), hazy vision, and eye pain (Ogunlesi et al., 2008). Its pharmacological properties include antimicrobial, anti-inflammatory, antioxidant, anticancer, and antidiabetic activities (Yadav et al., 2019) Table 1.

*Amaranthus spinosus* L. commonly referred to as "pigweed", belongs to the Amaranthaceae family. It is known as Dagunro in Yoruba and nnuno uku in Igbo. It is used to treat inflammation, malaria, bacterial infections (Ammar et al., 2025), and ophthalmia (Ogunlesi et al., 2008) Table 1.

*Spondias mombin* L. belongs to the Anacardiaceae family. It is called Iyeye in Yoruba, Uvuru or Ichikara/Ijikara in Igbo, and Isada in Hausa. It is used in the treatment of malaria, sore throat, inflammation (Boadu et al., 2022), and short-sightedness (Idu et al., 2009). It contains quercetin, catechin, ellagic acid and epicatechin. Pharmacological reports show that it has antiviral and anticancer activities (Boadu et al., 2022) Table 1.

*Rauvolfia vomitoria* (Afzel.) belongs to the Apocynaceae family (Koloko et al., 2025). It is known as Asofeyeje in Yoruba, Wada/Wadda in Hausa, and Akanta/Akata in Igbo. It is used to treat insomnia, malaria, typhoid fever (Koloko et al., 2025), and eye irritation (Idu et al., 2009). It has pharmacological properties such as antimicrobial, anticancer, antidiarrhoeal, antidiabetic, cardioprotective, and anticonvulsant activities (Koloko et al., 2025) Table 1.

*Newbouldia laevis* belongs to the family Bignoniaceae. It is commonly called African hyssop, 'Ogirishi' in Igbo, 'Àdùrúúkù' in Hausa, and 'Akoko' in Yoruba (Nigeria) (Ukwubile et al., 2023). Different parts are usedin traditional medicine to treat various diseases, such as malaria (stem bark), diabetes, piles (stem bark), epilepsy (flowers) (Ukwubile et al., 2023) and inflammation and redness of the eye (Idu et al., 2009) Table 1.

*Carica papaya* L. belongs to the family Caricaceae (Sharma et al., 2022). It is known as Ibepe in Yoruba, Okwuru-ezi/bekee and Mgbimgbi in Igbo, and Gwanda in Hausa. It is used to treat inflammation and pain, hypertension, diabetes, dermatitis, asthma, and stomach problems (Akanda et al., 2025), as well as for dissolving small fat deposits in the eyes and eyelids (Idu et al., 2009). C. papaya extracts exhibit numerous pharmacological activities, including anti-inflammatory, anti-ulcer, anti-arthritic, analgesic, anti-fertility, anti-cancer, anti-bacterial, antiviral, and wound-healing properties (Akanda et al., 2025) Table 1.

*Euphorbia hirta* belongs to the plant family Euphorbiaceae (Kumar et al., 2010). It is known as Nonan kurchiya in Hausa, Emi-ile in Yoruba, and Udani or Odane Inenemili in Igbo. It is used in the treatment of diarrhoea, dysentery, asthma, bronchitis, hay fever, and conjunctivitis (Kumar et al., 2010). Its pharmacological activities include antimalarial, anti-inflammatory, and antibacterial effects (Kumar et al., 2010) Table 1.

*Albizia lebbeck* (Benth) belongs to the Leguminosae family (Kalia et al., 2015). It is called Igbagbo in Yoruba. It is used to treat asthma, arthritis, burns (Babu et al., 2009), and night blindness (Idu et al., 2009). It contains luteolin, rutin, ellagic acid, quercetin, kaempferol, and β-sitosterol (Table 1).

*Baphia nitida* Lodd belongs to the Papilionaceae family (Adeyemi and Akindele, 2008). It is known as Osun in Yoruba and Ufie in Igbo. It is used to treat inflammation, infections, and pain, with the leaves, bark, and roots used to treat wounds and eye sores (Idu et al., 2009) Table 1.

*Allium cepa* is placed under the family Amaryllidaceae. It is known as Albasa in Hausa, Alubosa in Yoruba and Yabasi/Yabas in Igbo. It is use to treat irritation of the eye (Idu et al., 2009). Its pharmacological activities include anticancer, antidiabetic, antioxidant, antihypertensive, and anti-inflammatory effects (Chakraborty et al., 2022) Table 1.

Sida acuta belongs to the Malvaceae family. It is known as Udo in Igbo, Isekutu, Ewe Omo, or Abẹ̀rẹ̀ èyẹ in Yoruba, and Kafada or Gadan-gadan biri in Hausa. It is used as a diuretic, demulcent, anthelmintic, and for treating wounds (Mohideen et al., 2002) and eye pain (Idu et al., 2009) Table 1.

*Musanga cecropioides* belongs to the Cecropiaceae family. It is called Aga, Agbawo, and Oro in Yoruba. It is used to manage hypertension (Adeneye et al., 2006) and to treat conjunctivitis (Idu et al., 2009) Table 1.

*Solanum lycopersicum* L., popularly known as tomato, belongs to the Solanaceae family (Abdel-Razek et al., 2025). It is called Dan duma in Hausa. It has antioxidant, cardiovascular protective, anticancer, anti-inflammatory, antimicrobial, antidiabetic, and vision-enhancing effects (Abdel-Razek et al., 2025). Its most important bioactive compound is lycopene Table 1.

*Nicotiana tabacum*, popularly known as tobacco, belongs to the Solanaceae family (Zhang et al., 2024). In Yoruba and Hausa, it is called Taba, and in Igbo, it is called Anwuru or Utaba. It is used to treat gastroenteritis, diarrhoea, headache, cold, whooping cough, syphilis, arthritis, and eye irritation (Idu et al., 2009). Its pharmacological activities include antioxidant, anti-inflammatory, and anti-cancereffects (Zhang et al., 2024) Table 1.

*Cola nitida* belongs to the Sterculiaceae family (Dah-Nouvlessounon et al., 2015). It is generally called kola nut in English. In Hausa, Yoruba, and Igbo, it is called Goro, Obi gbanja, and Oji, respectively. It is used in the treatment of night blindness (Idu et al., 2009). It has antioxidant, anti-inflammatory and antidiabetic effects (Dah-Nouvlessounon et al., 2015) Table 1.

*Abelmoschus esculentus* L. belongs to the Malvaceae family. It is called Ila in Yoruba, Okwuru in Igbo, and Kubewa in Hausa. It is used for the treatment of dysentery, inflammation (Dantas et al., 2021), and conjunctivitis (Ezeoguine et al., 2021). It has antidiabetic, antiulcer, anticancer, and anti-inflammatory effects (Doreddula et al., 2014) Table 1.

*Allium sativum*, known as garlic, belongs to the Liliaceae family (Verma et al., 2023). In Yoruba, it is called Ayu; in Igbo, Galiki; and in Hausa, Tafamuuwaa. It is used to control blood sugar and to treat respiratory issues, ophthalmopathy, and sore eyes (Ezeoguine et al., 2021). It possesses antioxidant, antimicrobial, antihypertensive, and antihyperlipidaemic effects (Verma et al., 2023) Table 1.

*Azadirachta indica* L. belongs to the Meliaceae family (Saleem et al., 2018). In Hausa, it is called Dogoyaro, and in Igbo, it is called Akunshorop. It is used to treat headache, ulcer, respiratory disorders, cancer, diabetes, malaria (Saleem et al., 2018), night blindness, and conjunctivitis (Ezeoguine et al., 2021). It possesses antidiabetic, anti-inflammatory, hepatoprotective, insecticidal, nematicidal and antioxidant activities (Saleem et al., 2018) Table 1.

*Garcinia kola* Heckel belongs to the Clusiaceae family. It is known as Orogbo in Yoruba, Akiilu in Igbo, and Namijin Goro in Hausa. It is used to treat gastric disorders, bronchial diseases, fever, malaria (Tauchen et al., 2023), and glaucoma (Ezeoguine et al., 2021). It possesses anticancer, antidiabetic, anti-inflammatory, antimalarial, antimicrobial, hepatoprotective, and neuroprotective effects (Table 1).

*Psidium guajava* (L.) belongs to the Myrtaceae family (Kumar et al., 2021). It is called guaba in Yoruba, goba in Hausa and ugwoba in Igbo. It is used in treating stomach ache, diabetes, diarrhea (Kumar et al., 2021), and conjunctivitis (Ezeoguine et al., 2021). It contains bioactive compounds such as quercetin,

kaempferol, catechin, epicatechin, chlorogenic acid, and epigallocatechin gallate. Its pharmacological activities include anticancer, antidiabetic, antioxidant, antidiarrhoeal, antimicrobial, and lipid-lowering effects (Kumar et al., 2021) Table 1.

*Tamarindus indica* belongs to the Leguminosae family. It is known as Tsamiya in Hausa, Ajagbon in Yoruba, and Icheku oyibo in Igbo. It is used to treat abdominal pain, diarrhoea, wounds, malaria, fever, inflammation, gonorrhoea, and eye diseases. It possesses antidiabetic, antimicrobial, antioxidant, and antimalarial activities (Bhadoriya et al., 2011) Table 1.

**Table 1**: Medicinal plants used in the treatment of eye diseases in Nigeria

| S/N | Name of plants | Plant parts used | Method of preparation | Medicinal used | References |
|---|---|---|---|---|---|
| 1. | *Allium ascalonicum* | Bulb and leaves | Dried power from leaves and bulb | Use in the treatment of impaired vision | Ogunlesi *et al.* (2008) |
| 2. | *Abrus precatorius* | Leaves | Aqueous extract of leaves | Treatment of cataract | Okoli et al. (2007) |
| 3. | *Ageratum conyzoides* | Leaves | Juice of the squeezed leaves applied as eye drop | Treatment of hazy vision and eye pains | Ogunlesi *et al.* (2008) |
| 4. | *Amaranthus spinosus* | Sap | sap is used as an eye wash | treatment ophthalmia | Ogunlesi *et al.* (2008) |
| 5. | *Spondias mombin* | Leaves | Infusion of fresh leaves | Treatment of short sightedness | Idu *et al*. (2009) |
| 6. | *Spondias mombin* | Leaves plus lime juice | Fresh leaves are squeezed in water and lime juice added | Treatment of cataract | Idu *et al*. (2009) |
| 7. | *Rauwolfia vomitoria* | Fresh leaves | Juice is squeezed out of fresh leaves | Treatment of irritation of the eyes. | Idu *et al*. (2009) |
| 8. | *Newbouldia laevis* | Leaves | Decoction of the leaves | Treatment of inflammation and redness of eye | Idu *et al*. (2009) |
| 9. | *Carica papaya* | Seed | Decoction of the seed | Dissolving small fat deposits in the eyes and eyelids | Idu *et al*. (2009) |
| 10. | *Euphorbia hirta* | Stem | Latex from freshly cut stem | Treatment of conjunctivitis | Idu *et al*. (2009) |
| 11. | *Albizia lebbeck* | Leaves | Leaves are squeezed and the juice applied to the eye | Treatment of night-blindness. | Idu *et al*. (2009) |
| 12. | *Baphia nitida* | Leaves | Leaves are squeezed and the juice is applied to the eye | Treatment of eye sore. | Idu *et al*. (2009) |
| 13. | *Allium cepa* | Bulb | bulb is broken and brought close to the eye | Treatment of irritation of the eye | Idu *et al*. (2009) |
| 14 | *Sida acuta* | Leaves | Leaves are squeezed and drop in the eye | Treatment of eye pain | Idu *et al*. (2009) |
| 15. | *Musanga cecropioides* | Roots | Prop root is cut and the liquid from it is dropped into the eye | Treatment of conjunctivitis | Idu *et al*. (2009) |
| 16. | *Lycopersicon esculentum* | Leaves | Young fresh leaves are squeezed and the juice is dropped into the eyes | Treatment eyes with blood stain | Idu *et al*. (2009) |
| 17. | *Nicotiana tabacum* | Leaves | Leaves are squeezed and juice from it is dropped into the eyes | Treatment of eye irritation | Idu *et al*. (2009) |
| 18. | *Cola nitida* | Leaves | Leaves are heated and the juice squeezed from it is dropped into the eyes | Treatment of night blindness | Idu *et al*. (2009) |
| 19. | *Abelmoschus esculentus* | Fruit, flower | Not specified | Treatment of Conjunctivitis | Ezeoguine *et al*. (2021) |
| 20. | *Allium sativum* | Bulb | Not specified | Treatment of opthalmopathy and sore eyes | Ezeoguine *et al*. (2021) |
| 21 | *Azadirachta indica* | Whole plant | Not specified | Treatment of night blindness and conjunctivitis | Ezeoguine *et al*. (2021) |
| 22 | *Garcinia cola* | Seed | Not specified | Treatment of glaucoma | Ezeoguine *et al*. (2021) |
| 23. | *Psidium guajava* | Flower | Not specified | Conjunctivitis | Ezeoguine *et al*. (2021) |
| 24. | *Tamarindus indica* | Dates | Not specified | Cataract | Ezeoguine *et al*. (2021) |

**Table 2**

| S/N | Name of plants | Figure | References |
|---|---|---|---|
| 1. | *Allium ascalonicum* |  | VSadUIdoma, (2013). |
| 2. | *Abrus precatorius* |  | Ayurvedic Plants, (2018). |
| 3. | *Ageratum conyzoides* |  | Go Botany (Native Plant Trust, n.d.) |
| 4. | *Amaranthus spinosus* |  | *Wikispicies. (2025)* |

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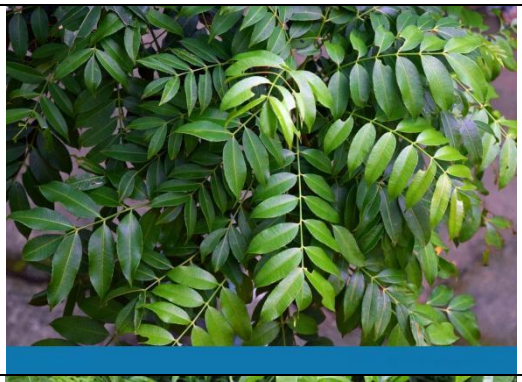
|---|---|---|---|
| 5. | *Spondias mombin* |  | Masud. (n.d) |
| 7. | *Rauwolfia vomitoria* |  | Friday. (2009) |
| 8. | *Newbouldia laevis* |  | Toptropicals.com. (n.d.) |
| 9. | *Carica papaya* |  | IndiaMART, (n.d.) |

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|---|---|---|---|
| 10. | *Euphorbia hirta* |  | North Carolina Botanical Garden. (2008). |
| 11. | *Albizia lebbeck* |  | Azani *et al*., (2017) |
| 12. | *Baphia nitida* |  | TopTropicals. (n.d.) |

| | | | |
|---|---|---|---|
| 13. | *Allium cepa* |  | Salgado *et al.,* (2011) |
| 14 | *Sida acuta* |  | Okoye. (2025) |
| 15. | *Musanga cecropioides* |  | Royal Botanic Gardens, Kew, (n.d.) |

| | | | |
|---|---|---|---|
| 16. | *Lycopersicon esculentum* |  | Plants For A Future. (n.d.) |
| 17. | *Nicotiana tabacum* |  | Seeds & All. (n.d.) |
| 18. | *Cola nitida* | | RegeneraG. (2018) |

| | | | |
|---|---|---|---|
| 19. | *Abelmoschus esculentus* |  | Adiaha (2017) |
| 20. | *Allium sativum* |   | Choudhary *et al.*, (2022) |
| 21 | *Azadirachta indica* |  | Dhakad *et al.,* (2025) |
| 22 | *Garcinia cola* |  | Agri-Impact, (2024) |

| | | | |
|---|---|---|---|
| 23. | *Psidium guajava* |  | TopTropicals, (n.d.) |
| 24. | *Tamarindus indica* |  | Seeds & All. (n.d.) |

## IV. Conclusion

Medicinal plants are used in Nigeria to treat various ocular diseases, possibly due to the high cost or ineffectiveness of conventional medicine, as well as resistance of causative agents to conventional treatments. Currently, various plants have been found effective against a number of ocular diseases. This study reviewed medicinal plants used in the traditional treatment of ocular diseases in Nigeria and identified 23 plants used for this purpose. The study revealed that these medicinal plants may be promising alternatives for isolating new bioactive compounds that could be used to develop effective treatments for ocular diseases. However, none of these plants have been tested against any ocular diseases, and there is no scientific evidence that any of them have therapeutic effects on ocular diseases. Furthermore, acute, subacute, or chronic studies on the use of these plants for ocular conditions are lacking. Therefore, we recommend that studies using standardized pharmacological and clinical procedures are needed to determine effective doses for the use of these plants in treating ocular diseases without any side effect. Identification and isolation of bioactive compounds for possible drug development for ocular disease treatment should be conducted. The safety profiles of these plants and their bioactive compounds should also be evaluated to ensure they do not have detrimental effects on the eye. Until then, the direct use of these plants in the eye should be approached with extreme caution.

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