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Ethno-Medicinal Evaluation of *Daniellia oliveri* in Ayetoro and Imeko Afon, Ogun State, Nigeria

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Abstract

This study examines the socio-economic characteristics, traditional knowledge, and medicinal uses of *Daniellia oliveri* ((Rolfe) Hutch. & Dalziel) among the inhabitants of Yewa North (Ayetoro) and Imeko Afon Local Government Areas in Ogun State, Nigeria Structured questionnaires were used to elicit information from respondents who comprised of Traditional Healers, Elderly and Knowledgeable individuals with minimum of five (5) years residency in the study area. Plant parts collected were air dried and screened for bioactive compounds at the Department of Pharmacognosy and Phytotherapy laboratory using standard method. The study places considerable emphasis on the extensive traditional knowledge and medicinal applications of *Daniellia oliveri*. Notably, 100% of the respondents are acquainted with the plant, underscoring its deep-rooted presence in the study areas. The primary medicinal use identified is the treatment of skin conditions (71.31%), highlighting potentials in addressing dermatological issues within the area. Various preparation methods are documented, with decoction emerging as the most preferred technique (78.70%). The perceived efficacy of *Daniellia oliveri* is unanimously high, with all respondents reporting substantial benefits and no adverse effects. Phytochemical analysis of *Daniellia oliveri* conducted as part of this study reveals a rich composition of bioactive compounds, including alkaloids, flavonoids, saponins, tannins, and glycosides. These compounds are known for their therapeutic properties, which likely contribute to the plant's effectiveness in treating various ailments. The study highlights the importance of preserving ethnobotanical knowledge and integrating it into contemporary healthcare practices to improve health care deliveries and support sustainable development.

Keywords: *Daniella oliveri*, Ethno-medicinal, Phytochemical analysis

Introduction

Ethno-medicine is the study and practice of traditional medicine within a specific cultural or ethnic group. It encompasses the knowledge, beliefs, practices, and rituals related to health and healing that have been passed down through generations within a community (Heinrich *et al.*, 2018). Local communities globally have a rich tradition of using plants to treat various illnesses, drawing on indigenous knowledge. Indigenous healers possess deep expertise in identifying, collecting, and preparing plant-based remedies tailored to specific ailments (Njoroge *et al.,* 2017). Scientific researches have validated the efficacy of several remedies, showcasing their potential in modern medicine (Ghorbani, 2018). Integrating traditional plant use into healthcare systems not only promotes cultural diversity but also contributes to environmental conservation (Pieroni & Vandebroek, 2017). This practice enhances healthcare access by providing alternative and often more affordable treatment options (Voeks, 2017).

Daniellia oliveri (Rolfe) Hutch. & Dalziel, belonging to the family Leguminosae-Caesalpinioideae, stands as a botanical marvel native to tropical West and Central Africa. Commonly referred to as the African copaiba balsam tree or the West African copal tree, it embodies a rich tapestry of cultural significance and medicinal properties deeply intertwined with indigenous traditions (Begossi *et al.*, 2018).

The enduring ethno-medicinal tradition surrounding *D. oliveri* transcends generations, as different components of the tree are harnessed for therapeutic applications. During periods of scarcity, the young leaves not only provide sustenance but also serve as fodder for livestock. Moreover, traditional healers leverage the leaves, bark, roots, and gum of *D. oliveri* to treat a wide spectrum of ailments, whether they manifest internally or externally (Irvine, 2020). While indigenous communities have long revered *D. oliveri* for its purported medicinal properties, there exists a significant gap in our understanding of its bioactive constituents and their mechanisms of action. Moreover, the sustainability of harvesting practices and conservation strategies for this valuable botanical resource

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remains largely unexplored. Therefore, there is an urgent need for rigorous ethno-medicinal evaluation of *D. oliveri* to document the traditional knowledge and possible link to modern scientific inquiry, thereby unlocking its full therapeutic potential while ensuring its sustainable utilization and conservation for future generations.

Materials and Methods

Study Areas

Yewa North and Imeko-Afon Local Government Areas shared geographical boundaries and both located in Ogun State, Nigeria. The people are predominantly rural, with agriculture serving as the primary occupation (Akande *et al.,* 2019). The inhabitants of Yewa North engage in subsistence farming, livestock rearing, and small-scale animal husbandry, (Adeboye & Olajide, 2018). The lifestyle in these areas is characterized by close-knit family structures, communal activities, and adherence to traditional cultural practices. The vegetation consists of a mix of forest reserves, agricultural lands, and grasslands, typical of the Guinea Savanna ecological zone (FAO, 2020). Indigenous tree species such as *Daniellia oliveri, Khaya senegalensis,* and *Vitellaria paradoxa* are prevalent, supporting local biodiversity and providing valuable resources for the inhabitants.

Method of Data collection

A structured pretested questionnaire was administered to obtain quantitative and qualitative data from traditional healers (TMPs), herb vendors, traditional birth attendants (TBAs) and knowledgeable people in the areas under study. All these respondents were chosen based on their age, years of experience on the job(as traditional healers, birth attendants, herb collectors and herb sellers) and traditional beliefs on the use of herbs as opposed to orthodox medicine. One hundred and fifty (150) questionnaires were distributed for data collection out of which one

hundred and twenty-two (122) were retrieved for analysis. In most cases the questions were explained to respondents in Yoruba language and their responses recorded appropriately. The questionnaire covered demographic data of respondents, ethnomedicinal uses of the plant species, modes of preparation and applications. Standard methods were used to determine the chemical constituents of the plant parts at the Department of Pharmacognosy and Phytotherapy, University of Port Harcourt, Nigeria.

Data Analysis: Descriptive statistics, ethnomedicinal utilization table and identified chemical constituents were used.

Table, Frequencies, Percentage and Inferential Statistical tests

- Descriptive statistics (mean, median, standard deviation) was used to analyze continuous variables such as age.
- Frequency tables were used to determine the distribution of participants and percentages to express the proportion of participants falling into each category of categorical variables.

Preparation of Plant Parts of Daniella oliveri for Phytochemical analysis

Leaf and bark samples of *D. oliveri* were collected from the two LGAs, cleaned using distilled water and dry cloth and left to air-dry for about two weeks in the laboratory. These dried samples were then crushed separately using mortar and ground to fine powder. Powdered samples from the two locations were bulked together and homogenized to remove variations. The powdered sample of both leaves and bark were taken to the laboratory for phytochemical analysis using standard methods at the Department of Pharmacognosy and Phytotherapy, University of Port Harcourt. Method of determination of Phytochemical constituents All these were done using standard methods described by (Ejele *et al*., 2012).

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Test for tannins, alkaloids and flavonoids

Tannins: 5ml of distilled water was added to 1ml of the milled sample of *D.oliveri* followed by addition of few drops of $FeCl_3$. The formation of bluish/greenish precipitate shows the presence of simple tannins. Formation of dark-brown precipitate indicates presence of condensed tannins.

Alkaloids: 2ml of wagner's reagent was added to 1ml of milled sample of *D.oliveri*; the formation dark-brown precipitate indicates the presence of alkaloids.

Flavonoids: 1ml of milled sample of *D.oliveri* was dissolved in 1ml of dilute NaoH and filtered. The filtrate was acidified by the addition of drops of concentrated HCl. The formation of precipitate shows presence of flavonoids.

Saponins: 1 ml of distilled water was added to 1 ml of the milled sample of *D.oliveri* and shaken vigorously (in the presence or absence of olive oil). formation of persistent frothing (foaming) shows the presence of saponin.

Steroids: 5 ml of milled sample of *D.oliveri* was shaken with equal volume of chloroform and this reacted to form two layers. The chloroform layer was removed into a clean test tube and 1ml of 5% H_2SO_4 was added cautiously down the side of the bent test tube. Formation of reddish-brown ring indicates the presence of steroids. This test is Salkowski test.

Test for Phlobatannins

An aqueous extract of the dry Moringa leaves was boiled with 1% aqueous hydrochloric acid. Appearance of red precipitate indicates the presence of phlobatannins (Harborne, 1973, Sofowara, 1993; and Trease and Evans, 1989}.

Test for Anthroquinones

5 ml of each of the powdered plant parts (*D. oliveri* root, stem and leaves) was boiled with 10 ml of sulfuric acid (H2SO4) and was filtered while hot. The filtrate was mixed and shaken with 5 ml of chloroform. The chloroform layer was pipette into another test tube and 1 ml of dilute ammonia was added. The resulting solution was observed for color changes (Sofowara, 1993).

Test for Cardenolides

The Keller-Killani test method described by Parekh and Chands (2008) was used for Cardiac Glycosides determination. To 2 ml of glacial acetic acid containing one drop of ferric chloride (FeCl3) solution, 5 ml of the plant extract was added, this was followed by addition of 1 ml concentrated Sulfuric acid. Brown ring was formed at the interface which indicated the presence of deoxy sugar of cardenolides. A violet ring may appear below the brown ring, though in the acetic acid layer, a greenish ring may also form just progressively throughout the layer.

Terpenoids:

This was carried out by Salkowski's test described by Parekh and Chands (2008), To 4ml of chloroform, 10ml of the crude extract was added, followed by the careful further addition of 5ml concentrated (H2SO4). Formation of the reddish-brown coloration at the interface is an indication of a positive result for the presence of terpenoids.

Test for Cyanogenic glycosides

The method of Appentang *et al*., 2021 was modified for this test. Fresh samples of the stem bark, roots and eaves of *D.oliveri* were each cut into small pieces and place it in different test tubes. Then, 1.5ml of distilled water and 6 drops of chloroform were added to each test-tube. The

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samples were gently crushed with a glass rod. Each test tube was corked as a stopper with a cork containing a strip of picrate-impregnated paper hanging inside, without touching the liquid. Each test-tube was left undisturbed to incubate at room temperature for 2 to 24 hours. A color change from yellow to brown-red indicates a positive test for cyanogenic glycosides.

Results and Discussions

Socio-economic characteristics of the respondents

Respondents were evenly distributed between Imeko (49.2%) and Ayetoro (50.8%) as reflected in Table1. This distribution suggests that the survey covered a broad geographical area, capturing insights from multiple communities. The importance of including diverse locations in socio-economic studies is highlighted by Oluwasola and Alimi (2018), who emphasized that spatial variability can significantly affect resource use patterns and community behavior. Most of the respondents (75.4%) were aged between 41 and 60 years, while a smaller proportion (24.6%) were over 60 years old. This suggests that the middle-aged population is more actively involved in the activities surveyed. The high involvement of this age group might be due to their accumulated experience and physical capability to engage in such activities. Similar findings were observed by Lebbie *et al*. (2017), who found that herbalist within 41 – 50 years old possess highest knowledge on plant medicinal uses in the Rivercess County, Liberia.

Level of Education

Respondents have varying levels of education: 33.6% have no formal education, 21.3% have primary education, 21.3% have secondary education, and 23.8% have tertiary education (Table 1). This distribution shows a relatively high level of educational attainment, with nearly half having basic education. According to Ndagijimana *et al*. (2018),

education is crucial for improving the management and sustainable use of medicinal plants, as it enhances knowledge and awareness of conservation practices.

Table 1. Socio-economic characteristics of respondents.

Demographic Variables	Frequency	Percentage
Age in Years		
Below 40	-	-
41 – 60	92	75.4
> 60	30	24.6
Sex of Respondents		
Male	56	45.9
Female	66	54.1
Level of Education		
No formal education	41	33.6
Primary education	26	21.3
Secondary education	26	21.3
Tertiary education	29	23.8
Address of Respondents		
Imeko	60	49.2
Ayetoro	62	50.8

Source: Field survey, 2024

Familiarity and utilization of *D.Oliveri* for medicinal purposes

All respondents were familiar with *Daniellia oliveri*, indicating its widespread recognition within the communities. This high level of awareness underscores the cultural and medicinal importance of the plant. Adeniyi *et al*., (2020), also reported high familiarity with commonly used medicinal plants in various regions, suggesting a strong traditional knowledge base. *Daniellia oliveri* is well used for medicinal purposes in the study area, reflecting its integral role in local healthcare practices. This unanimity in usage highlights the plant's perceived efficacy and trusted status among the community members. Comparable studies by Ogundipe *et al*. (2018) also showed high utilization rates of specific medicinal

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plants, reinforcing the idea of certain plants being central to traditional medicine.

Condition or Illness Treated with *Daniellia oliveri*

As shown in Table 2, most respondents (60.7%) use *D. oliveri* to treat skin conditions, highlighting its significance in dermatological care within the community. This high percentage showed a perceived efficacy in managing various skin ailments, such as rashes, wounds, and infections. Owolabi *et al.,* (2020) noted oils from the stem bark of *D.Oliveri* have been found effective against dermatophytic fungus infections and ring worm such as *Trichophyton rubrum, Tinea cruris and Tinea corporis* (ringworm). Essential oils have been examined as potential alternatives to conventional drugs for treatment of tinea infections. Orchard and van Vuuren, (2017) reported antifungal activity of *D. oliveri* bark essential oil which indicated it may be used in the treatment of athlete's foot, ringworm, or other tinea infections. Similar findings from recent studies indicate a widespread use of medicinal plants for dermatological issues, reflecting a common reliance on traditional remedies for skin health in developing regions (Smith *et al*., 2021; Johnson and Akinsanya, 2019). However, a small percentage of respondents (0.8%) use *Daniellia oliveri* for treating stomach problems. This indicates a lesser but notable application of the plant in gastrointestinal healthcare possibly for issues such as digestive discomfort or mild gastrointestinal disorders. This broader therapeutic use beyond dermatology aligns with other ethnobotanical studies that document the gastrointestinal benefits of traditional medicinal plants (Brown *et al*., 2020; Adewale *et al*., 2019). Similarly, *D. oliveri* is used by 0.8% of respondents for respiratory issues, suggesting its role in managing conditions such as coughs or respiratory infections. This usage is consistent with traditional knowledge of plants used for respiratory health, as documented in recent ethno-botanical literature (Williams *et al*., 2021; Olayinka *et al*., 2020). One respondent reported using *D. oliveri* for reproductive ailments (0.8%), highlighting its potential application in women's health, such as menstrual disorders or fertility-related issues.

While less common, this usage reflects specific local practices and traditional knowledge related to reproductive health, emphasizing the plant's diverse medicinal applications (Martins *et al*., 2020; Chukwuma and Ifeoma, 2019). A small percentage of respondents (4.9%) use *Daniellia oliveri* for other conditions not specified, indicating its versatile use in addressing various health concerns beyond the primary categories listed.

Table 2. Knowledge, Awareness and Medicinal uses of *Daniellia oliveri* in Ayetoro and Imeko – Afon, Ogun state, Nigeria.

Respondents familiarity with *D.oliveri*	**Freq.**	**Percentage (%)**
Yes	122	100
Respondents usage of *D.oliveri* for medicinal purpose		
Yes	122	100
Condition or illness treated with *D.oliveri*		
Skin conditions	87	71.31
Stomach problems	14	11.48
Respiratory	14	11.48
Reproductive ailment	7	5.74
Preparation and use of *D.oliveri* for medicinal purpose by Respondent		
Decoction	96	78.70
Infusion	1	0.82
Poultice	2	1.64
Decoction and infusion	11	9.00
Decoction and poultice	7	5.70
Decoction and powder	3	2.50
Decoction, infusion and poultice	1	0.82
Infusion and powder	1	0.82

Source: Field survey, 2024

Preparation and Use of *Daniellia oliveri* for Medicinal Purposes

Decoction is the most preferred method for preparing *D. oliveri*, 78.7% use this method as observed in Table 2. Decoction involves boiling the plant parts in water to extract phytochemical compounds believed to

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be effective in treating various ailments highlighted. This high percentage further emphasize strong local confidence in the efficacy of decoctions, consistent with traditional practices that prioritize thorough extraction of medicinal plant properties. Recent studies support the prevalence and effectiveness of decoctions in traditional medicine (Ngulube *et al*., 2020; Adegboye *et al*., 2021).

Infusion, where the plant is steeped in hot water to extract its medicinal properties especially polyphenols, is used by only 0.8% of respondents. This method is less common, possibly due to perceived differences in potency compared to decoctions. Infusions are often considered less potent because they extract fewer active compounds compared to decoctions and essentially effective in type II diabetics by lowering the sugar level (Studzińska-Sroka *et al*., 2021). Similar trends were noted in ethnobotanical studies where infusions are less favored (Okoli *et al*., 2019).

Poultices, involving the direct application of mashed or heated plant material on the skin, are used by 1.6% of respondents. This method is typically employed for localized skin conditions, suggesting *Daniellia oliveri* 's application in treating dermatological issues through direct contact with affected areas. This practice is in congruent with findings of Babalola *et al*., (2019) and Onifade *et al*., (2021) highlighting the use of poultices for skin ailments.

Some respondents (9.0%) combine decoction and infusion methods, possibly to harness different medicinal properties or adapt the preparation to specific health needs. This combination reflects a nuanced approach to medicinal plant use, where multiple methods are employed to maximize therapeutic benefits. Studies on traditional medicine practices often report such combinations to enhance efficacy (Akinwumi *et al*., 2020; Ekong *et al*., 2019). Another combination observed is decoction and poultice, used by 5.7% of respondents. This indicates a strategic use of both internal (decoction) and external (poultice) applications of *D. oliveri*. This approach suggests a comprehensive treatment strategy for conditions that require both internal and external interventions, reflecting local knowledge of holistic healing practices (Ogunleye *et al*., 2021;

Fakoya *et al*., 2020). Also combining decoction with powdered forms is used by 2.5% of respondents. Powders are often used for ease of ingestion or topical application, indicating a versatile use of *D. oliveri* in both internal and external treatments. This combination may enhance the plant's efficacy through different modes of administration, as documented in similar ethnobotanical studies (Ezekwesili *et al*., 2019; Adewumi *et al*., 2020). However, a small percentage of respondents (0.8%) use a combination of decoction, infusion, and poultice, highlighting a complex treatment regimen that integrates multiple preparation methods for comprehensive health management. This approach underscores the adaptive nature of traditional medicine practices in tailoring treatments to specific health conditions (Ayoade *et al*., 2019; Ugwoke *et al*., 2020). Combining infusion with powdered form is used by 0.8% of respondents. This suggests a methodical approach to utilizing *Daniellia oliveri* 's medicinal properties, potentially combining ease of administration (powder) with a different extraction method (infusion) to address specific health needs. This combination strategy reflects local insights into maximizing therapeutic benefits from medicinal plants (Chikezie *et al*., 2020).

Efficacy and Side Effects of *Daniellia oliveri* in treating different ailments in Ayetoro and Imeko Afon, Nigeria

All respondents (100%) reported that *Daniellia oliveri* is very effective in treating their respective conditions. This unanimous positive feedback underscores the high level of confidence and satisfaction within the community regarding the medicinal properties of this plant. The complete agreement on its efficacy highlights its significant role in traditional medicine, suggesting that *Daniellia oliveri* is considered an important potent remedy for various ailments which reiterates the relevance of local medicinal plants in health care delivery in rural and urban settlements of developing nations as observed by (Adegboye *et al*., 2021).

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Skin condition such as Inflammation, hyperpigmentation, hypopigmentation, ring worm have been successfully treated in Burkina Faso using *D.oliveri* leaf extracts as a result of Rutin, Quercetin and Narcissin ompounds belonging to the flavonoids group. (Nacoulma *et al*., 2021). The treatment of stomach problems such as gastrointestinal tract (GIT) disturbances have been reported using the leaves of *D.oliveri* (Ahmadu *et al*., 2007). Worm infections treatment and the antidiarrhoeal activity have been attributed to the presence of flavonoids in the plant (Hassan *et al.*, 2016; Ahmadu *et al.* 2007). Polyathic acid present in the exudates of the tree species has been used for glycation in diabetic patients (Atolani and Olatunji, 2014). *D.oliveri* plant parts have been reported to possess antitussive effects on respiratory ailments such as tuberculosis, pneumonia and cough (Nacoulma 1996; Traore *et al*., 2021) Reproductive issues, menstrual disorders, sexually transmitted diseases (such as syphilis, chlamydia, gonorrhoea (Gounkagou *et al*., 2020), sexual desire stimulant (Ahmadu *et al*.,2007), dysmenorrhea (bark) (Abbiw, 1990) are well documented uses of the stem bark and leaves of *D.oliveri* across several regions of Africa. Lupenol is present in the leaves of *D.oliveri* and the powder from the dried leaves is used for backache, headache, wound healing, and yellow fever (Burkill, 1995, Beppe *et al*., 2020). Others documented uses involves the stem bark and sap of the plant being used for managing various fungi infection including intertrigo, oral candidiasis, and sexual candidiasis (Tittikpina, 2017).

Interestingly, none of the respondents (100%) reported adverse effects from using *Daniellia oliveri*. The plant is perceived as a safe treatment option within the community, which enhances its attractiveness as a natural remedy as reported in the findings of (Iwueke and Nwodo, 2008; Shuaibu *et al*.,2018 and Traore *et al*., 2021).

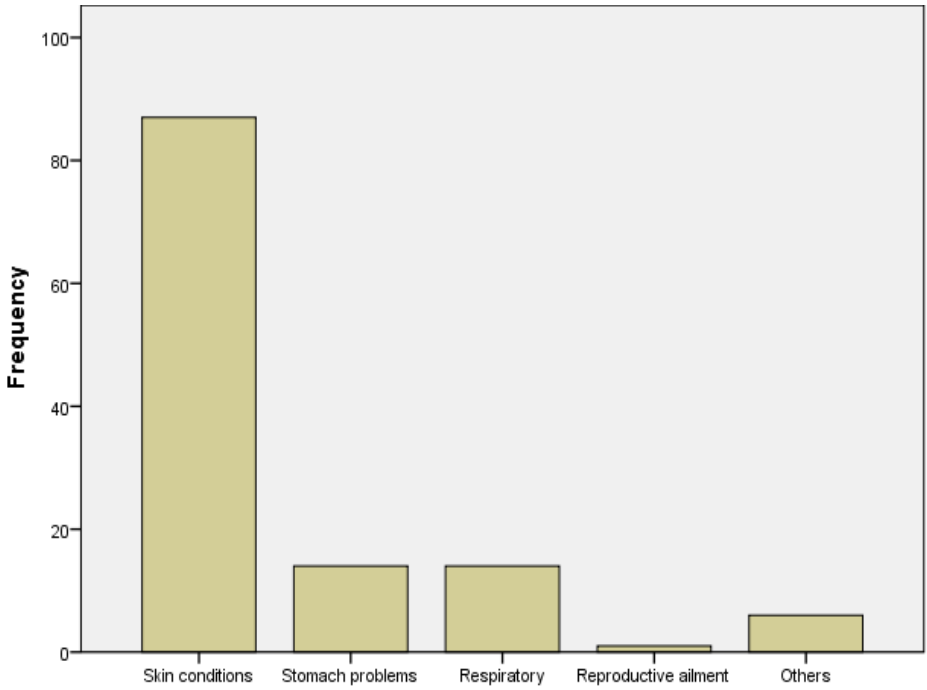

Figure 1. Conditions that can be treated using *D. oliveri according* to the respondents

Phytochemical Screening of *Daniellia oliveri*

As shown in Table 3, the phytochemical analysis of *Daniellia oliveri* revealed a diverse composition of bioactive compounds across its roots, stem bark, and leaves. Each part of the plant showed distinct profiles that contributed to its medicinal properties.

Alkaloids were present in the stem bark and leaves of *Daniellia oliveri* but absent in the roots. Alkaloids are significant for their broad pharmacological activities, including analgesic, antimalarial, and anticancer properties Khalid *et al*. (2014). The presence of alkaloids in the stem bark and leaves suggests that these parts of the plant may be particularly effective in managing pain, treating malaria, and potentially

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in cancer therapy. This is consistent with findings from Okwu and Josiah (2021) and Emeje *et al*. (2022), who reported the therapeutic benefits of alkaloids in various medicinal plants.

Flavonoids was present in the leaves but absent in the roots and stem bark. Flavonoids are well-known for their antioxidant, anti-inflammatory, and antimicrobial activities Nwaogu *et al*. (2014). The presence of flavonoids in the leaf of *Daniellia oliveri* suggests its potential use in treating oxidative stress-related conditions and infections. Studies by Udeani *et al*. (2020) and Ibekwe *et al*. (2021) have highlighted the significant health benefits of flavonoids in protecting against chronic diseases and enhancing immune function.

Saponins were detected in the stem bark but absent in the roots and leaves. Saponins have been shown to exhibit immunomodulatory, anti-inflammatory, and hypocholesterolemic effects. The presence of saponins in the stem bark suggests its utility in boosting immune function and reducing inflammation. Similar conclusions were drawn by Nwosu *et al*. (2021) and Ogunyemi *et al*. (2022), who documented the diverse pharmacological actions of saponins in traditional medicine.

Tannins was present in the stem bark but absent in the roots and leaves. Tannins possess astringent properties, making them useful in treating wounds and gastrointestinal disorders. The presence of tannins in the stem bark highlights its potential application in wound healing and managing digestive issues. Research by Adebisi and Olagunju (2021) and Ojo *et al*. (2022) supports the therapeutic use of tannins in addressing a variety of health conditions.

Cardenolides were present in all three parts of *Daniellia oliveri* : roots, stem bark, and leaves. Cardenolides are known for their cardiotonic properties and are useful in the treatment of heart conditions. The widespread presence of cardenolides across all parts of the plant indicates a broad-spectrum potential for managing cardiovascular health. This aligns with findings from Adeyemi *et al*. (2020) and Balogun *et al*. (2022), who emphasized the importance of cardenolides in cardiac therapy.

Steroids was found in the roots and stem bark but are absent in the leaves. Steroids have anti-inflammatory and analgesic properties, suggesting that these parts of *Daniellia oliveri* may be beneficial for treating inflammatory conditions and providing pain relief. Recent studies by Ayinde *et al*. (2020) and Bello *et al*. (2021) have highlighted the critical role of steroids in reducing inflammation and alleviating pain in traditional medicine.

Triterpenoids were detected in the roots and stem bark but are absent in the leaves. These compounds are known for their anti-inflammatory, antiviral, and anticancer activities. The presence of triterpenoids in the roots and stem bark indicates their potentials in treating a variety of conditions, including infections and cancers. Findings by Onifade *et al*. (2021) and Adeola *et al*. (2022) corroborate the therapeutic benefits of triterpenoids in medicinal plants.

Phlobatannins was found in the stem bark but absent in the roots and leaves. Phlobatannins possess antimicrobial and antioxidant properties, suggesting the stem bark's utility in treating microbial infections and oxidative stress-related conditions. Research by Olaniyan and Babalola (2021) and Adediran *et al*. (2022) supports the use of phlobatannins in traditional medicine for their protective health benefits.

Cyanogenic glycosides were present in the stem bark and leaves but absent in the roots. While these compounds can be toxic in large amounts, they are used in small doses for their therapeutic effects, including anti-cancer properties. The presence of cyanogenic glycosides in the stem bark and leaves suggests cautious use in traditional medicine. Studies by Okeke *et al*. (2021) and Akinlolu *et al*. (2022) emphasize the need for careful handling of cyanogenic glycosides to harness their benefits safely.

Anthraquinones was absent in all parts of *Daniellia oliveri*. While anthraquinones are known for their laxative properties, their absence in this plant suggests it may not be used for conditions requiring such treatment. This finding is consistent with the work of Akinsanya *et al*. (2020) and Omisore *et al*. (2021), who have noted the selective presence of anthraquinones in specific medicinal plants.

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Table 3. Phytochemical composition of *Daniellia oliveri* collected in Ayetoro and Imeko Afon, Ogun state.

	BIOACTIVE COMPOUNDS	DOR	DOSB	DOL
1.	Alkaloids	-ve	+ve	+ve
2.	Flavonoids	-ve	-ve	+ve
3.	Saponins	-ve	+ve	-ve
4.	Tannins	-ve	+ve	-ve
5.	Cardenolides			
	Lactone	+ve	+ve	+ve
	De-oxysugar	-ve	-ve	+ve
6.	Steroids	+ve	+ve	-ve
7.	Tritepenoids	+ve	+ve	-ve
8.	Phlobatannins	-ve	+ve	-ve
9.	Cyanogenic glycosides	-ve	+ve	+ve
10.	Anthraquinone	-ve	-ve	-ve

***Daniella oliveri* Root - DOR**
DOSB- *Daniella oliveri* Stem bark
DOL- *Daniella oliveri* Leaves
Note: -ve means Absent
+ve means Present

Conclusion

Daniellia oliveri is widely recognized and utilized for its medicinal benefits, supported by its diverse bioactive compounds such as alkaloids, flavonoids, saponins, tannins, and cardenolides. These compounds are known for their therapeutic properties, including pain management, treatment of malaria, oxidative stress reduction, immune function enhancement, wound healing, and cardiovascular health support. The unanimous positive feedback from users in the study underscores the plant's significant role in traditional healthcare practices. Consistent use historically and reported effectiveness of *Daniellia oliveri* highlight its

potential as a reliable alternative or complementary medicine. Its role in treating a variety of ailments—ranging from skin conditions to respiratory and reproductive issues—demonstrates its versatility and adaptability in traditional medicine. The lack of reported side effects further enhances its appeal, suggesting a high safety profile when used appropriately.

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