Essential Oils Bearing Plants of Cameroon – An Update

Vougmo Fogang 1,2, Filiz Meriçlı 1*, Dudu Özkum Yavuz 3*, Talla Clovis 2, Kenfack Fogang 4,5 and Tagne Mamno 6

1 Department of Phytotherapy, Faculty of Pharmacy, Near East University, ZIP: 99138 Nicosia / TRNC Mersin 10, Turkey.
2 Department of Pharmaceutical Sciences, Faculty of Medicine and Biomedical Sciences, University of Yaoundé 1, Cameroon.
3 Department of Pharmaceutical Botany, Faculty of Pharmacy, Near East University, ZIP: 99138 Nicosia / TRNC Mersin 10, Turkey.
4 Institut of Agricultural Research for Development (IRAD), P.O Box 2123, Yaoundé, Cameroon.
5 Laboratory of Zoology, Faculty of Science, University of Yaoundé 1, P.O. Box 812, Yaoundé, Cameroon.
6 Department of Nutrition and Dietetics, Faculty of Health Sciences, Near East University, ZIP: 99138 Nicosia / TRNC Mersin 10, Turkey.

Authors’ contributions

All authors have contribute equitably, read and agreed to the published version of the manuscript.

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ABSTRACT

In Cameroon, several plants are used both for their medicinal properties and as food. Many of them contain essential oils as one of their secondary metabolites. Although traditional healers rarely, if ever, use essential oils as the basis for their treatments, it is thought that the latter would be found in their products in view of the preparation processes used. And therefore several activities attributed to their drugs are linked to the presence of essential oils. Many studies have revealed the presence of essential oils in several plants found in Cameroon, and validated their traditional use. The purpose of this study is to identify these plants on the basis of studies carried out in order to

*Corresponding authors: E-mails: filiz.mericli@neu.edu.tr, dudu.ozkum@neu.edu.tr;
make a review which will serve as support for future studies. This work reviewed available and accessible original articles in EBSCO, Ovid MEDLINE®, PubMed®, ScienceDirect™, Scopus® and Web of Science™ databases on Cameroon plants studied for their essential oils. We have identified ninety plants that have been the subject of proven studies and scientific publication. They are mainly distributed in the families of Lamiaceae (14: 16%), Annonaceae (11: 12%), Rutaceae (10: 11%), Asteraceae (10 : 11%) and Myrtaceae (09 : 10%). We believe that an important work remains to be done in the search for new essential oils in Cameroon, because the country is endowed with a very great botanical diversity.

Keywords: Essential oils; medicinal plants; ethnobotany; traditional medicine; Cameroon.

1. INTRODUCTION

Covered, for its southern half, by the forest of the Congo Basin, Cameroon is an important reserve of global biodiversity and is home to hundreds of endemic species. The country has one of the most important biological diversity in Africa in terms of variety, quantity, ecosystem and genetic resources. With a high rate of endemism, Cameroon ranks 7th in the world in terms of flora richness [1]. The country is home to 92% of Africa’s ecosystems and the rich biodiversity contains 8260 identified plant species including 156 endemic species [2]. Plants play an essential role in the life of the Cameroonian populations. Either consumed or sold, they represent a significant part of their income. In Cameroon, several plants are used both for their medicinal properties and as food. Many of them contain essential oils as one of their secondary metabolites. Although traditional healers rarely, if ever, use essential oils as the basis for their treatments, it is thought that the latter would be found in their products in view of the preparation processes used. And therefore several activities attributed to their drugs could be linked to the presence of essential oils. Many studies have revealed the presence of essential oils in several plants found in Cameroon, and validated their traditional use.

Essential oils are complex mixtures of volatile compounds produced by living organisms and isolated by physical means only (pressing and distillation) from a whole plant or plant part of known taxonomic origin [3]. They are important aromatic components of herbs and spices and their biological activities have been known and utilised since ancient times in perfumery, food preservation, flavouring, and medicine. They act biologically according to several mechanisms that justify their use as an antibiotic, anti-inflammatory, antioxidant and many others.

The market value of essential oils worldwide is expected to grow from around 17 billion U.S. dollars in 2017 to about 27 billion dollars by 2022 [4]. The five major producers of essential oils across the world are China, India, Indonesia, Sri Lanka and Vietnam [5]. The production and sales in Africa are not very important. Nevertheless, some African countries are recognised worldwide as essential oils producers. In 2019, the major African countries producers of essential oils were Egypt, Madagascar, South Africa, Morocco, Tunisia, Comoros, Kenya, Ethiopia, Tanzania and Eswatini [6]. In this ranking, Cameroon is far behind. The Cameroon trade of essentials oils are as follow; 111000 dollars of exportation versus 346000 dollars of importation, with therefore a loss of trade value of 335,000 dollars [6]. Knowing the floristic richness of Cameroon as well as its climate favorable to the growth of numerous species of plants, we believe that a concise inventory of essential oils bearing plants would make it possible to identify the most important ones in order to develop their production on a large scale and thus rank in the first ranks of African and world producers of essential oils. It is a real part of the national economy which remains very underexploited.

2. MATERIALS AND METHODS

This work reviewed available and accessible original articles in EBSCO, Ovid MEDLINE®, PubMed®, ScienceDirect™, Scopus® and Web of Science™ databases on recent literature, which cover the years 2000 and 2021 on Cameroon plants studied for their essential oils.

3. RESULTS AND DISCUSSION

A review of scientific journals and databases such as Science Direct, PubMed, and many others, enabled us to identify 90 species of essential oil bearing plants found in Cameroon that have been subject of studies. These plants belong to 22 families and two of them are endemic in Cameroon. The following table shows our findings.
Table 1. Essential oils bearing plants of Cameroon

| Families            | Species                          | Local name                  | Used parts | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities                                                                 | References |
|---------------------|----------------------------------|-----------------------------|------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------|
| Amaranthaceae       | Dysphania ambrosioides(L.) Mosyakin & Clemants | Elog minsom                 | Aerial parts | p-Cymene (29.2%), limonene (0.2%), allyl hexanoate (0.3%), p-cymene (fr), p-methyl acetoephene (fr), p-cymen-β-ol (0.3%), α-terpineol (fr), dihydroascaridole (0.7%), cis-ascaridol (35.4%), cis-piperitone epoxide (0.1%), trans-piperitone epoxide (0.4%), trans-ascaridole glycol (1.7%), cis-ascaridole glycol (2.1%), carvacrol (0.1%), trans-ascaridole (26.0%), 4-hydroxy-cryptone (0.1%). | Traditional Medicine: Diuretic, antifungal, wound healing, and in the treatment of respiratory and inflammatory disorders. | [7]        |
| Annonaceae          | Annona senegalensis Pers.        | Doukouhi (fd)               | Leaves     | α-Thujene (2.12%), α-Pinene (8.3%), p-cymene (36.0%), Limonene (4.8%), Z-β-Ocimene (2.0%), Linalool (1.6%), Z-Sabinol (6.9%), Thymol (0.4%), α-Cubebene (0.5%), β-Cubebe (0.4%), α-Copaene (0.9%), β-Caryophyllene (0.17%), E-α-Bergamotene (0.5%), α-Humulene (0.4%), β-Ionone (0.2%), Germacrene D (1.0%), α-Murolene (1.0%), β-Cadinene (0.4%), α-Cadinene (0.2%), α-Murolol (0.4%), α-Cadinol (0.6%) | Bioactivity: insecticidal (worm expelling) and insecticidal. Traditional Medicine: the seeds are used to eliminate lice the stem bark to kill intestinal worms and the root bark to treat cancer. In Congo, the plant is prescribed as an additive in medicine for asthma and adecoction of the stem barks is used to cure cephalgia | [9][10]    |
| Cananga odorata     | (Lam.) Hook.f. & Thomson         | Salt-and-oil tree (English); Wombo (Pygmies Bakola), Avom (Ewondo and Bulu) | Fruits | α-Thujene (2.8%), α-Pinene (11.1%), Sabinene (34.3%), β-Pinenene (3.4%), Myrcene (24.7%), α-Phellandrene (0.2%), α-Terpinene (3.7%), p-Cymene (fr), Limonene (0.9%), (Z)-β-Ocimene (2.0%), (E)-β-Ocimene (0.3%), γ-Terpinene (5.6%), Terpinolene (0.8%), 1, 6-Cineole (0.7%), Thujanol (0.2%), Terpin-4-01 (8.0%), α-Terpineol (fr), β-Caryophyllene (0.2%), α-Humulene (fr), Germacrene D (0.2%), γ-Murolene (0.2%), β-Pinene (0.28%), γ-terpinene (0.24%), linalool (0.65%), δ-elemene (2.44%), α-cubebe (1.33%), α-ylangene (0.42%), α-copaene (16.90%), β-eleme (2.44%), cyperene (1.66%), (Z)-α-b ergamotene (0.43%), β-caryophyllene (2.58%), γ-eleme + β-cubebe (2.91%), (E)-α-bergamotene (1.10%), (E)-β-farnesene (0.80%), α-humulene (0.90%), alloaromadendrene (0.80%), γ-murolene (1.80%), germacrene D (3.80%), α-murolene (1.19%), β-bisabolene (0.94%), (Z)-γ-bisabolene | Bioactivity: insecticidal Antibacterial, antimi crobial; antioxidant, antifungal; anti- Aedes aegypti and Anopheles dirus activity | [11]       |
| Cleistopholis patens | Engler& Diels                    | Salt-and-oil tree (English); Wombo (Pygmies Bakola), Avom (Ewondo and Bulu) | Stem bark, leaves | Small amounts of α-pinene, β-pinene, γ-terpinene, α-cubebene, γ-ylangene, α-copaene, β-ele- mence, α-murolene, γ-murolene, germacrene D, and β-caryophyllene were also found. | Traditional Medicine: Febrifuge and vermifuge | [13]       |

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| Plants                                      | Local name                  | Used parts | Main Compounds                                                                                     | Traditional Medicine usages and Bioactivities | References |
|--------------------------------------------|-----------------------------|------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------|------------|
| *Duguetia confinis* (Engl. & Diels) Chatrou | Stem bark                   |            | 0.87%, γ-cadinene (0.33%), bicyclogermacrene (2.81%), δ-cadinene (28.70%), (E,Z)-germacrene B (4.91%), germacrene B (7.40%), spathulenol (2.52%), caryophyllene oxide (2.90%), cubenol (2.46%), <sub>e</sub>pi-α-muurolol (1.92%), α-cadinol (0.30%), α-Thujene (0.59%), sabinene (0.59%), δ-3-carene (1.1%), α-terpinene (0.48%), p-cymene (0.32%), (E)-β-ocimene (1.93%), terpinolene (0.4%), linalool (0.22%), fenchol (0.18%), (E)-pinocarvyl (0.31%), pinocarvone (3.16%), terpinen-4-ol (0.16%), δ-elemene (0.53%), α-cubebene (0.52%), α-copaene (7.06%), β-elemene (0.73%), cyperene (15.54%), α-cedrene (6.02%), α-gurjunene (1.86%), β-caryophyllene (0.28%), (E)-α-bergamotene (0.18%), α-humulene (5.04%), γ-muurolene (0.35%), germacrene D (0.84%), γ-cadinene (3.51%), bicyclogermacrene (2.41%), β-selinene (0.28%), (E,E)-α-farnesene (2.66%), α-selinene (1.41%), δ-cadinene (8.06%), (Z)-calamenene (2.32%), α-cadinene (1.01%), elemol (1.24%), (E)-nerolidol (2.42%), spathulenol (2.16%), caryophyllene oxide (7.24%), globulol (2.38%), humulene oxide (3.17%), cubenol (3.23%), T-muurolol + torreyol (2.1%), <sub>e</sub>pi-α-cadinol (1.25%), α-muurolol (0.64%), α-cadinol (1.16%), farnesol (0.35%), eugenyl acetate (1.78%), 2,4,5-trimethoxy-styrene (0.43%), benzyl benzoate (0.21%), camphene (0.13%), β-pinene (0.12%), terpinen-4-ol (0.13%), δ-elemene (0.21%), α-cubebene (0.36%), α-ylangene (0.33%), α-copaene (13.27%), β-elemene (1.92%), cyperene (11.53%), iso-caryophyllene (0.75%), β-caryophyllene (1.30%), aromadendrene (1.08%), α-humulene (1.76%), allostigmamenol (8.52%), γ-muurolene (1.93%), germacrene D (2.62%), α-muurolene (1.29%), γ-cadinene (2.53%), β-selinene (2.20%), α-selinene (3.37%), δ-cadinene (10.07%), calacorene (7.82%), (Z)-calamenene (1.09%), cadalene (1.58%), (E)-nerolidol (2.82%), spathulenol (1.97%), caryophyllene oxide (2.54%), γ-eudesmol (0.99%), humulene oxide (1.38%), <sub>e</sub>pi-α-cadinol (7.34%), 10-dih-<sub>e</sub>pi-cabeno (1.30%), β-eudesmol (1.08%), α-cadinol (1.41%), α-eudesmol (1.61%), <sub>e</sub>pi-α-bisabolol (1.47%). | Anti-Plasmodium falciparum | [14]     |
| *Hexalobus crispiflorus* A.Rich. Chungé (Pyba) Epota (Pybi) Ewo (Ewondo) Léoué (Bassa) Mom panda Owé (Bulu et Ewondo) | Bark |            | (0.87%), γ-cadinene (0.33%), bicyclogermacrene (2.81%), δ-cadinene (28.70%), (E,Z)-germacrene B (4.91%), germacrene B (7.40%), spathulenol (2.52%), caryophyllene oxide (2.90%), cubenol (2.46%), <sub>e</sub>pi-α-muurolol (1.92%), α-cadinol (0.30%), α-Thujene (0.59%), sabinene (0.59%), δ-3-carene (1.1%), α-terpinene (0.48%), p-cymene (0.32%), (E)-β-ocimene (1.93%), terpinolene (0.4%), linalool (0.22%), fenchol (0.18%), (E)-pinocarvyl (0.31%), pinocarvone (3.16%), terpinen-4-ol (0.16%), δ-elemene (0.53%), α-cubebene (0.52%), <sub>e</sub>pi-α-cadinol (1.25%), α-cadinol (0.30%), farnesol (0.35%), eugenyl acetate (1.78%), 2,4,5-trimethoxy-styrene (0.43%), benzyl benzoate (0.21%), camphene (0.13%), β-pinene (0.12%), <sub>e</sub>pi-α-cadinol (1.25%), α-cadinol (0.30%), farnesol (0.35%), eugenyl acetate (1.78%), 2,4,5-trimethoxy-styrene (0.43%), benzyl benzoate (0.21%), camphene (0.13%), β-pinene (0.12%), terpinen-4-ol (0.13%), δ-elemene (0.21%), α-cubebene (0.36%), α-ylangene (0.33%), α-copaene (13.27%), β-elemene (1.92%), cyperene (11.53%), iso-caryophyllene (0.75%), β-caryophyllene (1.30%), aromadendrene (1.08%), α-humulene (1.76%), allostigmamenol (8.52%), γ-muurolene (1.93%), germacrene D (2.62%), α-muurolene (1.29%), γ-cadinene (2.53%), β-selinene (2.20%), α-selinene (3.37%), δ-cadinene (10.07%), calacorene (7.82%), (Z)-calamenene (1.09%), cadalene (1.58%), (E)-nerolidol (2.82%), spathulenol (1.97%), caryophyllene oxide (2.54%), γ-eudesmol (0.99%), humulene oxide (1.38%), <sub>e</sub>pi-α-cadinol (7.34%), 10-di-<sub>e</sub>pi-cabeno (1.30%), β-eudesmol (1.08%), α-cadinol (1.41%), α-eudesmol (1.61%), <sub>e</sub>pi-α-bisabolol (1.47%). | Traditional Medicine : purgative and emetic. | Bioactivity : Antiplasmodial | [14]     |
| Plants | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|--------|------------|------------|----------------|-----------------------------------------------|------------|
| **Families** | **Species** | | | | |
| **Monodora myristica (Gaertn)** | Medic, Mendak in Bamiléké, Bikoma in Bassa, Pêbe in Duala, Feb in Bulu and Ndîng in Beti | Fruits | α-Thujene (1.4%), **α-phellandrene (67.1%)**, α-pinene (4.2%), sabine (0.1%), β-pinene (0.3%), myrcene (3.8%), α-terpinene (0.1%), p-cymene (tr), limonene (1.8%), β-phellandrene (3.05%), (Z)-β-ocimene (0.3%), (E)-β-ocimene (0.2%), γ-terpinene (tr), terpinolene (tr), linalool (2.1%), cis-p-menth-2-en-1-ol (tr), trans-p-menth-2-en-1-ol (tr), α-terpinolene (0.6%), trans-thujen-3-ol (0.7%), β-elemene (0.1%), β-caryophyllene (0.3%), α-humulene (0.3%), γ-murolene (0.4%), trans-murola-4(14)-5-diene (0.3%), α-murolene (0.4%), β-cadinene (1.7%), δ-cadinene (3.2%), germacrene D-4-ol (1.3%), epi-α-cadinol (0.9%), α-cadinol (0.9%), shoybunol (0.3%), (2Z, 6Z)-farnesol (1.1%). | stimulants, stomachic, headaches, sores and also as insect repellent. | [16] |
| **Pachypodanthium conifera Engl. & Diels** | Ntombe, Ntoma, Molombo, N'tom [17] | stem bark | α-Thujene (0.59%), Sabine (0.59%), δ-3-Carene (1.1%), α-Terpinene (0.48%), p-Cymene (0.32%), (E)-β-Ocimene (1.93%), Terpinolene (0.4%), Linalool (0.22%), Fenchol (0.18%), (E)-Pinocarveol (0.31%), Pinocarvone (3.16%), Terpin-4-ol (0.16%), δ-Elemene (0.53%), α-Cubebene (0.52%), α-Copaene (7.06%), β-Elemene (0.73%), **Cyperene (15.54%)**, α-Cedrene (6.02%), α-Gurjunene (1.18%), δ-Caryophyllene (0.28%), (E)-α-Bergamotene (0.18%), α-Humulene (5.04%), γ-Murolene (0.35%), Germacrene D (0.84%), β-Cadinene (3.51%), Bicyclogermacrene (2.41%), β-Selinene (0.28%), (E,E)-α-Farnesene (2.66%), α-Selinene (1.41%), δ-Cadinene (8.06%), (Z)-Calamenene (2.32%), α-Cadinene (1.01%), Elemol (1.24%), (E)-Nerolidol (2.42%), Spathulenol (2.16%), Caryophyllene oxide (7.24%), Globulol (2.38%), Humulene oxide (3.17%), Cubenol (3.23%), T-Murolol-torreyol (2.1%), epi-α-Cadinol (1.25%), α-Murolol (0.64%), α-Cadinol (1.16%), Farnesol (0.35%), Eugenyl acetate (1.78%), 2,4,5-Trimethoxy-styrene (0.43%), Benzyl benzoate (0.21%), α-Copaene (5.7%), β-elemene (0.1%), (Z)-α-bergamotene (5.20%), α-cedrene (1.00%), α-santalene (4.50%), β-caryophyllene (0.90%), (E)-α-bergamotene (0.00%), (E)-β-farnesene (3.00%), α-humulene (0.10%), α-farnesene (5.70%), ar-curcumene (8.60%), β-bisabolene (28.20%), δ-cadinene (0.70%), (Z)-calamenene (3.00%), β-sesquiphellandrene | Traditional Medicine : Against body lice. | [14] |
| **Uvariastrum pierreanum (Engl. & Diels)** | stem bark, leaves | | | Bioactivity : Antiplasmodial | [13] |
| Families | Species | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|----------|---------|------------|------------|----------------|-----------------------------------------------|------------|
| Xylopia aethiopica (Dunal) A. Rich | Bikui in Beti | Dried fruits | - | α-Thujene (1.92%), α-pinene (7.39%), α-fenchene (0.12%), β-pinene (32.16%), α-pherllandrene (6.8%), α-terpinene (0.61%), p-cymene (0.44%), β-pherllandrene+1,8-cineole (0.03%), Z-b-cocimene (1.12%), limonene (0.68%), β-Phellandrene (10.71%), cis-β-ocimene (2.37%), γ-terpinene (2.09%), Camphenilone (0.18%), p-cymene (1.94%), terpinene (0.39%), β-thujone (0.46%), cis-p-menth-2-en-1-ol (0.22%), Nopinone (0.19%), myroxide E (0.02%), p-menth-1,5-dien-8-ol (0.44%), terpinene-4-ol (0.11%), cryptone (0.03%), α-terpeneol (0.05%), myrtenal (0.13%), methyl chavicol (0.04%), verbene (4.67%), trans-carveol (0.06%), (R)-(−)-beta citronellol (0.74%), (E)-citral (0.21%), cuminol (0.2%), Carvone (0.12%), Perylaldehyde (0.33%), bornyl acetate (0.04%), thymol (0.35%), 2E,4Z-decadienal (0.05%), longycyclene (1.37%), α-copaene (0.2%), β-bourbonene (0.63%), α-cubebene (0.04%), cyperene (0.13%), β-elemene (0.49%), Z-caryophyllene (0.47%), cis-prenyl limonene (0.6%), β-copaene (0.08%), aromadendrene (0.21%), α-humulene (0.95%), trans-prenyl limonene (0.09%), aromadend-9-ene (0.2%), gercmacrene D (0.19%), Z-γ-bisabolene (10.07%), δ-cadinene (0.13%), E-γ-bisabolene (0.87%), α-cadinene (0.12%), α-calacorene (0.14%), selina-3,7(11)-diene (0.56%), Germacrene-B (0.04%), elemol (0.04%), caryophyllene oxide (0.1%), thujopsan-2-a-ol (0.56%), neryl isovalerate (0.19%), epi-globulol (0.16%), epoxy-allo alloaromadendrene (0.06%), isopathulénol (0.04%), α-eudesmol (0.25%), vélérianol (0.11%), α-cadinol (0.14%), E-apritone (0.08%). | Traditional Medicine: treatment of a cough, stomachache, dizziness, amenorrhea, bronchitis, dysentery, headache, neuralgia, carminative, female fertility, purgative, biliousness and skin infections, fever, tapeworm, stomach ache, stomach ulcer, spice [15] | [18] |
| Xylopia parviflora (A. Rich) Benth | mbatou’ou in Bangangté | Fruits | α-Pinene (10.80%), sabinen (3.00%), β-pinene (32.90%), p-cymene (2.80%), limonene (0.50%), β-pherllandrene (0.70%), 1,8-cineole (2.00%), (Z)-β-ocimene (tr), (E)-β-ocimene (8.00%), linalool (0.70%), trans-pinocarveol (3.20%), trans-verbenol | Sore groin in women, abscesses, lung infections, body aches, headache, fever [20] | [16] |
| Plants                         | Local name | Used parts | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities          | References |
|-------------------------------|------------|------------|---------------------------------------------------------------------------------|--------------------------------------------------------|------------|
| **Apiaceae**                  |            |            |                                                                                   |                                                        |            |
| Xylopia phloiodora Mildbr.    | odjobbo    | Stem bark, | (0.40%), pinocarvone (0.70%), borneol (0.60%), terpinen-4-ol (0.70%), p-cymen-8-ol (0.70%), α-terpineol (1.70%), myrtenol (5.20%), bornyl acetate (0.40%), δ-elemene (tr), α-cubebeene (tr), α-ylangene (0.60%), α-copaene (0.50%), β-elemene (0.40%), β-caryophyllene (tr), β-copaene (1.10%), γ-muurolene (0.50%), germacrene D (2.00%), trans-muurola-4(14),5-diene (1.80%), α-muurolene (0.80%), 5-cadinene (3.70%), cubehol (1.70%), elemol (2.00%), carophyllene oxide (2.00%), epi-α-cadinol (2.40%), α-muurol (2.90%), germacra-4(15),5,10(14)-triene-1-diol (1.50%), α-Pinene (0.58%), camphene (1.38%), β-pinene (0.68%), p-cymene (0.35%), linalool (0.31%), nopinone (0.28%), (E)-pinocarvol (1.23%), p-cymen-8-ol (1.58%), myrtenal (0.28%), verbenone (2.23%), thymol (0.28%), δ-elemene (3.29%), α-copaene (0.53%), cytosativene (2.07%), β-elemene (0.58%), cypene (0.34%), (E)-α-bergamotene (0.04%), epi-bicyclo-sesquiphyllandrene (3.00%), germacrene D (1.02%), γ-cadinene (11.27%), bicyclogeranone (1.43%), α-selinene (21.92%), δ-cadinene (15.11%), calacorene (0.89%), cadalene (7.65%), elemol (2.04%), (E)-nerolidol (0.64%), spathulenol (1.02%), carophyllene oxide (5.07%), fesenol (0.76%), globulol (1.93%), humulene oxide (0.68%), T-muurol + turroyl (3.7%), epi-α-cadinol (0.95%), α-muurol (0.58%), α-cadinol (0.5%), farnesol (0.37%), ethyl benzoate (0.25%), methoxy cinnamaldehyde (1.47%), benzyl benzoate (0.83%). | Bioactivity : Antiplasmodial [14] | [21]        |
| Eryngium foetidum L. (Mexican Coriander) | Megnebili  | aerial part | 2-dodecanol (50.62%), 2,4,5-trimethyl-benzaldehyde (11.08%), n-Dodecanal (10.29%), 1-(2-Methylbutyl)-1-(1-methylpropyl)-cyclopropane (5.94%), α-Pinene (3.49%), Decanal (2.59%), Cyclopropane-carboxamidine (1.09), Prircocine I (1.01%), Z-2-Dodecenol (0.94%), Gamma terpinene (0.84%), 2,7-Dimethyl-2,7-octadien-1-amine (0.87%), Tetradecanal (0.79%), 2,4,6-trimethyl-benzaldehyde (0.75%), p-Cymene (0.67%), (Z)-3-Heptadec-5-yno (0.53%), Cyclocdecane (0.52%), Carotol (0.48%), 1,2,3,6-Tetramethyl-bicyclo[2.2.2]oct-2-ene (0.44%), Dodecanoic acid (0.43%), β-Caryophyllene (0.37%), Ethyl benzoate (0.25%), Methoxy cinnamaldehyde (1.47%), Benzyl benzoate (0.83%). | Spice. Treatment of pneumonia, diabetes, constipation, fevers, vomiting, diarrhea [22] | [23]        |

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| Families         | Plants                      | Local name                  | Used parts            | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities                                                                 | References |
|------------------|----------------------------|-----------------------------|-----------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------|
| Asteraceae       | Ageratum conyzaïdes L.     | Mré guefah [24]. Tchouamo’ [25]. | Entire plant          | (0.41%), Beta myrcene (0.27%), 1-Imidazol-1-yf-3-methylbut-2-en-1-one (0.25%), Nerolidol (0.24%), Undecane (0.23%), 3-Methyl-2-butenolic acid, tridec-2-ynyl ester (0.21%), 1,4-Diethyl-1,4-dimethyl-2,5-cyclohexadiene (0.18%), (R)-(z)-Limonone (0.16%), N,N-Dimethylcetylamine (0.16%), Undecanal (0.15%), Butylated hydroxytoluene (0.13%), 1-Methyl-7-oxabicyclo[4.1.0]heptane (0.13%), Verbenol (0.13%), (Z)-β-Farnesene (0.10%), Pinane (0.10%), 1,7,7-Trimethylbicyclo[2.2.1]hept-5-en-2-one (0.09%), 2-Undecenal (0.09%), Beta-bisabolene (0.09%), Safranal (0.08%), β-Chamigrene (0.07%), Furfuryl ester (0.07%), (z)-β-Farnesene (0.07%), Sabine (0.07%), 3-Isopropenyl-5,5-dimethylcyclopentene (0.06%), Phenylacetaldehyde (0.06%), 3-Methylenecyclopentane (0.06%), Nonanal (0.06%), n-Nonane (0.05%), α-Pinene oxide (0.05%), 6-(4-Morpholyl)-N-(5-methyl-3-isoxazolyl)-hexanamide (0.05%), a-Campholenal (0.05%) and four not identified components. | Antibacterial Protective fetish; purgative, febrifuge; headaches; treat skin deseases, pain; gynecological diseases. amnionitis affecting the newborn, placenta retention; gastritis, quick delivery; postpartum remedy, lung disease; typhoid fever [26]. |
|                  | Ageratum houstonianum      | Flowers                     |                       | Demethoxyageratocromene (Preoccene I) (48.01%), ageratocromene (Preoccene II) (36.55%), β-caryophyllen (8.37%), germacrene D (2.34%), bornyl acetate (2.29%), β-cubebene (1.22%), β-farnesene (0.66%). | Antitick [27]. |
|                  | Bidens pilosa L.           | Yayet or tseutsé’ lezeuk [25]. Okpadi [28]. | Leaves               | 1-Hexanol (1.1%), α-pinene (14.7%), β-myrcene (1.9%), 5-3-carene (1.3%), β-octimene (12.8%), limonene (2.3%), p-cymene-8-ol (3.6%), α-terpinolene (2.5%), γ-terpinene (0.1%), trans-linalool oxide (1.6%), cis-linalool oxide (1.4%), linalool (4.4%), terpinene-4-ol (0.3%), bourbounene (3.9%), δ-elemene | Antioxidant, antimicrobial [29]. |
| Families          | Plants                             | Local name                      | Used parts     | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities                                      | References |
|-------------------|------------------------------------|---------------------------------|----------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------|
|                   | Chromolaena odorata (L.)           | Siam weed, Triffid weed         | Leaves         | α-Pinene (9.36%), β-pinene (3.77%), α-terpinene (3.69%), p-cymene (1.49%), limonene (0.78%), cis-p-mentha-2,8-dien-1-ol (0.72%), borneol (0.03%), α-terpineol (0.13%), carvacrol (2.63%), α-elemene (2.80%), (Z)-β-farnesene (9.98%), α-humulene (0.09%), bicyclogermacrene (12.55%), cadina-1,4-dien (4.60%), α-humulene oxide (5.62%), geijerene (11.85%), pregeijerene (1.29%). | Anti-tick skin infections, mycosis, urinary infections and inf infection [30].           | [31]       |
|                   | Echinops giganteus A.Rich.         | Roots                           |                | α-Pinene (tr), mycrene (tr), δ-3-carene (tr), limonene (tr), terpinolene (tr), silephiperfol-5-ene (2.1%), presilpherfol-7-ene (7.8%), silephine (1.7%), 7-epi-silephiperfol-5-ene (3.5%), modeph-2-ene (3.0%), silephiperfol-6-ene (23.0%), α-isocoumarone (2.4%), iso-longifolene (tr), β-isocoumarone (2.1%), α-gurjunene (tr), (E)-carphol (6.3%), α-humulene (2.0%), (E)-β-farnesene (tr), germacrene D (0.3%), ar-curcumene (0.1%), epi-cubeol (0.1%), silephiperfolan-6-α-ol (1.0%), cameroonan-7-α-ol (7.1%), β-cadinene (0.3%), silephiperfolan-7-β-ol (2.5%), silephiperfolan-6-β-ol (1.7%), prenopsan-8-ol (3.2%), presilpherfolan-8-ol (22.7%), 1,1-diepi-cubeol (0.1%), caraphylla-(4,12),8-(13)-dien-5-ol (tr), epi-α-murolol (0.4%), α-murolol (0.1%), α-cadinol (0.4%), curcuphenol (0.4%). | Spice, heart and gastric troubles, stomach ache, carminative help and reduce the effects of alcohol, and reduces asthma attacks [32]. | [32]       |
|                   | Erigeron floribundus (Kunth) Sch.Bip.| Mré gam, aerial part            |                | butyl methyl ketone (tr), hexanol (0.1%), (3E)-hexenol (0.2%) n-hexanal (0.1%), 1-(2-methyl-2-cyclopenten-1-yl)-ethanone (tr)-pinene (0.2%), sabine (tr) β-pinene (2.1%), myrcene (0.1%), 2-pentyl furan (0.1%), p-cymene (tr), limonene (8.8%), (E)-β-ocimene (0.1%), γ-terpinene (tr), terpinolene (tr), linalool (0.1%), n-nonanal (tr), (E)-4,8-dimethyl-1,3,7-nonatriene (tr), trans-p-mentha-2,8-dien-1-ol (tr), trans-pinocarveol (0.1%), nerol oxide (tr), pinocarvone (0.1%), linalool (0.1%), terpinen-4-ol (0.1%), trans-isocarveol (tr), α-terpineol (0.2%), myrtenal (0.1%), myrtenol (0.1%), β-cyclocitrinal (0.1%), nerol (0.4%), carvone. | Traditional Medicine : angina, female infertility, AIDS, dental pain, headache and various diseases of microbial and non-microbial origin. [33]. | [33]       |
| Plants    | Local name | Used parts | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities | References |
|-----------|------------|------------|--------------------------------------------------------------------------------|-----------------------------------------------|------------|
| *Helichrysum cameroonense* Hutch. & Dalziel (endemic[34]) | Flowers | Octen-3-ol (1.2%), α-thujene < (0.1%), α-pinene (46.4%), verbene (2.6%), sabi- nene (1.1%), β-pinene (2.0%), myrcene < (0.1%), p-cymene < (0.1%), δ-3-carene (1.5%), (E)-β-octimene (1.1%), campholenal (1.0%), pinocarveol (3.2%), camphor (11.5%), α-phellandrol (5.3%), terpinen-4-ol (3.3%), α-terpinol (1.3%), myrtenol (1.8%), p-cymen-8-ol (4.1%), myrtenyl acetate (3.3%), α-caryophyllene (1.3%), caryophyllene oxide (2.2%), δ-guaienol (5.4%). | infectious diseases | [35] |
| *Helichrysum cymosum* (L.) D.Don ex G.Don | Mba’a [36] | Leaves | Bornyfene (2.7%), α-pinene (6.8%), camphene (7.4%), β-pinene (0.6%), α-terpinene (1.6%), p-cymene (0.6%), δ-3-carene (16.1%), limonene (1.7%), (Z)-β-octimene < (0.1%), (E)-β-octimene < (0.1%), terpinolene < (0.1%), 1,8-cineole (1.7%), l | Traditional Medicine : Flatulence, Weak bones [36]. Bioactivity : Antifungal | [35] |
| Plants                        | Local name | Used parts | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities                                      | References |
|------------------------------|------------|------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------|
| Helichrysum globosum Sch.Bip.| Mba’a [36] | Leaves     | 3-en-3-ol < (0.1%), α-pinene (38.6%), verbene < (0.1%), sabine < (0.1%), myrcene < (0.1%), δ-3-carene (7.2%), terpinolene (2.5%), α-terpinolene (1.3%), β-caryophyllene (3.8%), α-humulene (3.0%), γ-selinene (4.1%), β-selinene (6.0%), γ-cadinene (2.9%), α-selinene (8.6%), nerolidol (5.0%), α-cadinol (3.0%), δ-guaienol (1.8%), valerianone (10.9%). | Antifungal Osteomalakia (Rickets)[36]                                                                                                      | [35]        |
| Laggera pterodonta (DC.) Sch.Bip. ex Oliv. | mamataba | Leaves and flowers | α-thujene (0.1%), α-pinene (0.4%), sabine (tr), β-pinene (2.2%), α-phellandrene (0.1%), δ-3-carene (0.1%), α-terpinene (0.2%), p-cymene (0.2%), limonene (1.1%), β-terpinene (0.7%), terpinolene (0.4%), 1,8-cineole (0.9%), Linalool (0.1%), cis-p-menth-2-en-1-ol (1.0%), trans-p-menth-2-en-1-ol (0.1%), camphor (1.7%), borneol (0.1%), terpinen-4-ol (1.3%), α-terpinol (0.3%), trans-chrysanthyl acetate (0.1%), thymol methyl ether (0.2%), thymol (tr), 2,5-dimethoxy-p-cymene (28.2%), α-copaene (0.1%), β-bourbonene (0.1%), β-elemene (0.2%), β-caryophyllene (7.8%), precocene I (0.1%), β-gurjunene (0.2%), α-humulene (4.1%), (E)-β-farnesene (0.8%), γ-muurolene (4.7%), δ-guaiaene (tr), δ-cadinene (0.1%), β-selinene (0.1%), cis-calamene (0.1%), β-caryophyllene oxide (2.2%), γ-eudesmol (26.2%), t-cadinol (0.5%), β-eudesmol (0.2%), α-eudesmol (3.5%), juniper camphor (4.7%), α-bisabolol (2.6%), α-Thujene (0.2%), α-pinene (29.3%), camphene (0.6%), sabine (0.3%), β-pinene (0.8%), menthene (1.6%), α-phellandrene (30.9%), δ-3-carene (2.3%), α-terpinene (2.4%), p-cymene (9.2%), limonene (0.4%), γ-pinene (0.3%), terpinolene (4.6%), 1,8-cineole (9.0%), camphor (0.8%). | Traditional Medicine : sexual disorders,                                                                                                     | [37]        |
| Burseraceae                   | Aucoumea klaineana Pierre. | Okoumé Resin | 3-en-3-ol < (0.1%), α-cym a catate (1.6%), borneol < (0.1%), terpinen-4-ol < (0.1%), α-terpinol (0.6%), δ-elemene (1.9%), α-copaene (0.5%), β-elemene (0.8%), β-caryophyllene (12.0%), aromadendrene (3.6%), methyl hexyl bourgine (7.2%), α-humulene (5.6%), γ-selinene (1.2%), germacrene D (0.6%), β-selinene (5.7%), germacrene B (2.3%), α-selinene (6.8%), spathulenol (0.9%), caryophyllene oxide (1.1%), humulene oxide (0.9%), β-eudesmol (2.7%), α-eudesmol (1.3%), valerianone (1.4%). | Antiradical and antioxidant                                                                                                                  | [38]        |
| Families               | Plants                              | Local name       | Used parts | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities                                      | References |
|-----------------------|-------------------------------------|------------------|------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------|
| Caesalpiniaeae (     | Canarium schweinfurthii Engl.      | Abel [28]        | Resin      | terpinen-4-ol (2.5%), α-terpineol (3.1%), carveol (0.3%), α-Pinene (1.7%), β-Pinene (2.0%), β-pinene (0.4%), α-phellandrene (1.1%), β-3-carene (0.3%), α-terpineol (0.5%), p-cymene (9.8%), limonene (42.7%), γ-terpinene (1.9%), terpinolene (1.5%), 1,8-cineole (0.3%), terpinen-4-ol (2.3%), α-terpineol (34.4%) | Antiradical and antioxidant                                                      | [38]       |
| (Leguminosae -       | Scorodophloa zenkeri Harms          | tropical garlic  | Seeds      | 2,4-Dithiapentane (tr), 2,3,4-Trithiapentane (0.6%), 1,2,4-Trithiolane (tr), 1,3,5-Trithiaclyclohexane (tr), 2,3,5,7-Trithialhexane (24.2%), 3-Methyl-2,4,5-Trithialhexane (0.1%), Dimethyltetrasulfide (0.1%), Tris(methylthio)methane (0.5%), 2,3,4,6-Tetraethylhexane (6.2%), 2,3,5,7-Tetraethyloctane (0.3%), 2,4,5,7-Tetraethylacete (51.5%), 3,6-Dimethyl-2,4,5,7-tetraethylacete (0.3%), 2,4,5,6,8-Pentathianonane (9.0%), 2,4,5,7,9-Pentathiadecane (2.3%), 2,4,5,7,8,10-Hexathiaundecane (tr), α-Pinene (0.1%), Limonene (0.2%), (Z)-β-Ocimene (tr), (E)-β-Ocimene (0.2%), Eugenol (1.6%), 2,4-Bis(1,1-dimethylpheryl)phenol (tr). | treatment of headache, cough, rheumatism, and constipation                                   | [39]       |
| Caesalpinioideae)     | Capparidaceae                       | Pentadiplandra   | Roots      | Benzoaldehyde (0.4%), benzylcyanide (17.0%), benzylmethylate (0.1%), p-anisaldehyde (0.9%), p-methoxybenzy alcohol (0.2%), benzylisothiocyanate (78.0%), 4-methoxypentylacetone (2.5%), β-caryophylene (0.1%), 4-methoxybenzyisothiocyanate (0.1%), 3-methoxybenzyisothiocyanate (tr) | Food flour preservation, edble because of their sweet taste. Traditional Medicine : Preventing and treating cellulite [40]. | [40]       |
| Capparidaceae         | Pentadiplandra brazzeanaBaill.     | Difeuh in        | Sapin (french) | α-Thujene (0.6%), β-pinene (7.4%), sabine (1.0%), β-pinene (0.2%), myrcene (1.2%), β-3-carene (0.1%), α-terpine (0.6%), p-cymene (0.5%), limonene (3.5%), γ-terpinene (1.0%), terpinolene (0.9%), 1,8-cineole (0.4%), cis-linalool oxide (0.1%), trans-linalool oxide (furanoid) (0.1%), linalool (1.3%), umbellulone (18.3%), cryptone (0.2%), terpinen-4-ol (2.6%), p-cymen-8-ol (0.2%), α-terpineol (0.5%), bornyl acetate (0.1%), thymol (1.6%), cis-acetoxylnaol oxide (0.9%), terpin-4-yl acetate (0.4%), α-terpinyl acetate (1.3%), 2-heptyl acetate (0.4%), heptyl propanoate (3.3%), hexyl butanoate (0.5%), 2-heptyl butyrate (0.2%), α-copaene (0.2%), β-elemene (0.1%), α- | Traditional Medicine : haemorrhoids, rheumatism, whooping cough and styptic problems. Protect stored grains from insect infestation, cure skin diseases [43]. | [42] [43]  |
| Capparidaceae         | Cupressus lusitanica Mill.          | Sapin (french)   | Leaves     | α-Thujene (0.6%), β-pinene (7.4%), sabine (1.0%), β-pinene (0.2%), myrcene (1.2%), β-3-carene (0.1%), α-terpine (0.6%), p-cymene (0.5%), limonene (3.5%), γ-terpinene (1.0%), terpinolene (0.9%), 1,8-cineole (0.4%), cis-linalool oxide (0.1%), trans-linalool oxide (furanoid) (0.1%), linalool (1.3%), umbellulone (18.3%), cryptone (0.2%), terpinen-4-ol (2.6%), p-cymen-8-ol (0.2%), α-terpineol (0.5%), bornyl acetate (0.1%), thymol (1.6%), cis-acetoxylnaol oxide (0.9%), terpin-4-yl acetate (0.4%), α-terpinyl acetate (1.3%), 2-heptyl acetate (0.4%), heptyl propanoate (3.3%), hexyl butanoate (0.5%), 2-heptyl butyrate (0.2%), α-copaene (0.2%), β-elemene (0.1%), α- | Traditional Medicine : haemorrhoids, rheumatism, whooping cough and styptic problems. Protect stored grains from insect infestation, cure skin diseases [43]. | [42] [43]  |
| Families       | Species                    | Local name | Used parts            | Main Compounds                                                                                           | Traditional Medicine usages and Bioactivities | References |
|---------------|-----------------------------|------------|-----------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------|------------|
| Cyperaceae    | Cyperus articulatus L       | Ndfu       | roots and rhizomes    | Cedrene (1.7%), β-caryophyllene (0.7%), β-copaene (0.2%), cis-murola-3,5-diene (4.2%), α-humulene (0.6%), α-acradiene (0.5%), germacrene D (8.2%), γ-curcumene (3.0%), γ-amorphene (0.5%), alaskenea (0.8%), epi-zonarene (5.0%), bicyclogermacrene (0.3%), α-murolene (0.9%), cuparene (tr), β-bisabolene (0.2%), β-curcumene (1.1%), γ-cadinene (0.1%), trans-calamenene (3.8%), 5-cadinene (tr), cis-calamenene (0.6%), α-calacorene (0.2%), β-calacorene (0.2%), β-acradiene (1.6%), cedrol (1.6%), epi-α-cubanol (0.9%), α-acoreol (6.0%), β-acoreol (0.9%), epi-α-cadinol (0.3%), epi-α-murolol (0.2%), α-murolol (0.1%), α-cadinol (1.2%), cis-14-nor-murol-5-en-4-one (1.1%), (Z)-nuciferol (0.2%) [42]. α-Pinene (9.9%), sabinene (14.8%), δ-3-carene (4.2%), myrcene (2.3%), α-terpinene (4.2%), limonene (3.9%), α-phellandrene (1.5%), terpine ne (5.7%), p-cymene (cymol) (3.8%), terpineolene (2.4%), terpinen-4-ol (11.4%), bicyclosquestiphelandrene (2.3%), terpineol (2.7%), α-terpinyl-acetate (3.3%), eucumene (1.4%), cis-calamenene (1.7%), α-cadinene (1.9%), cedrol (3.3%). | | [44] |
|               | Cypress sempervirens L. | Cypress | Leaves               | Traditional Medicine : treatment of onchocerciasis                                                                 |                                               | [45] |

References:

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| Plants | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|--------|------------|------------|----------------|---------------------------------------------|------------|
| Families | Species | | hexahydro-α,α,4a,8-tetramethyl- [2R(2a,4aα,8aα)]-cycloisolongifolene, 8,9-dehydro-caryophyllene oxide, longipinocarvone-3-isopropyl-6,7-dimethyltricyclo[4.4.0.0(2,8)]decane-9,10-diol; cis-Z-α-bisabolene epoxide, longiverbenone, 2,2,7,7-tetramethyltricyclo[6.2.1.0(1,6)]undec-4-ene-3-one, acetic acid, 3-hydroxy-6-isopropenyl-4,8a-dimethyl-1,2,3,5,6,7,8,8a-octahydronaphthalen-2-yl ester, 5(1H)-azulene-2,4,6,7,8,8a-hexahydro-3,8-dimethyl-4-(1-methylethylidene) (8S-cis)-perhydrocycloprop[a]azulene-4,5,6-triol, 1,1,4,6-tetramethyl-1H-cyclop propane[azulen-7-01, decahydro-1,1,7-trimethyl-4-methylene-[1ar-(1aα,4aα,7aα,7bα)], (+)-spathulenol, corymboline, ketoalcohol, spiro[4.5]decan-7-one, 1,8-dimethyl-8,9-epoxy-4-isopropyl-9H-cycloisolongifolene, 8-oxo-2(1H)naphthalenone, 3,5,6,7,8,8a-hexahydro-4,8adimethyl-6-(1-methylthienyl)-E-15-heptadecenal, 6-isopropenyl-4,8a-dimethyl-1,2,3,5,6,7,8,8a-octahydronaphthalene-2,3-diol, 2(1H)-naphthalenone, 4a,5,6,7,8,8a-hexahydro-6-{1-(hydroxymethyl)ethenyl}-4,8adimethyl-[4ar-(4aα,6α,8aα)]-1-naphthalenol, decahydro-1,4a-dimethyl-7-(1-methylethylidene)-[1R-(1α,4α,8αα)]-cyclodecasioxane, eicosamethyl-| |
| Tetracosamethyl-cyclododecasiloxane 2,6-dimethyl-1,3,5,7-octatetraene- E,E-benzene, 1-methyl-3-(1-methylethyl)-1H-cycloprop[a]azulene, 1a,2,3,4,4a,5,6,7-bicyclo[2.1.1]hexane-2,4,5,6,7,8,8a-hexahydro-1,4,9-tetramethyl-[3αR-(3αa,4αa,7aα)]-benzene, 1-{(1,5-dimethyl-4-hexenyl)-4-methyl-benzene, 1-methyl-4-(1,2,3-trimethylcyclopentyl)-(R)-azulene, 1,2,3,5,6,7,8a-octahydro-1,4-dimethyl-7-(1-methylethynyl)-[1S-(1α,7aα,8aα)]-α-calamorone, octacosane oodecanoic acid, n-hexadecanoic acid, ([Z],9,12-octadecadienoic acid, cis-13-octadecenoic acid, (Z,Z)-9,12,15-octadecatrienoic acid, cis-13-octadecenoic acid, octadecanoic acid, eicosanoic acid, isophthalic acid, di(2-methylprop-2-en-1-yl)ester, myrtenyl |
| Plants | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|--------|------------|------------|---------------|---------------------------------------------|------------|
| Euphorbiaceae (APG: Phyllanthaceae) | Antidesma laciniatum Müll. Arg. | Bark | acetate, trichloroacetic acid, hexadecyl ester, bis(2-ethylhexyl)phthalate, oodecanoic acid, dodecyl ester, (-)-trans-pinocarvyl acetate, undecanonic acid, tetradecyl ester, oodecanoic acid, hexadecyl ester. | Traditional Medicine : Aphrodisiac | [14] |
| Drypetes gossweileri S. Moore | Kodé in Pygmées of Zingui Bolya in Pygmées of Bibaya Oleieng in Ewondo [46] | Barks | Linalool (9.4%), geranial (0.5%), geranyl acetate (14.9%), α-copaene (2.2%), β-bourbonene (0.5%), β-caryophyllene (5.2%), α-copaene (0.3%), α-humulene (2.1%), γ-muurolene (0.7%), germacrene D (8.5%), α-muurolene (1.5%), γ-cadinene (0.3%), (E,E)-α-farnesene (0.5%), β-cadinene (1.3%), α-cadinene (0.3%), germacrene D-4-ol (0.4%), sathapalenol (1.4%), caryophyllene oxide (8.5%), humulene oxide (3.5%), epi-α-cadinol (0.2%), epi-α-muurolol (2.5%), α-muurolol (1%), α-cadinol (3%), (E,E)-farnesol (2%), (E,E)-farnesyl acetate (1.3%), p-methyl anisol (2.1%), methyl benzoate (0.5%), benzyl acetate (1.5%), (E)-anethole (0.6%), (E)-cinnamyl acetate (0.6%), benzyl benzoate (19.1%), benzyl salicylate (3%). | Traditional Medicine : toothache, dysentery, gonorrhoea, corzya, sinustis, boils and swellings [47]. | [48] |
| Euphorbia golondrina L.C.W heeler | Leaves | | 2,4-Dimethylthiophene (0.03%), dialyl sulphide (0.11%), allyl methyl disulphide (0.01%), N,N'-dimethyl thiourea (0.01%), benzaldehyde (0.28%), phenylacetaldehyde (0.06%), 2-propenyl propyl disulphide (0.02%), terpinolene (0.02%), phenylmethanol (0.01%), campholenol (0.03%), benzylcyanide (35.72%), dimethyl tetrasulfide (0.02%), benzylisothiocyanate (63.19%), germacrene D (0.02%), β-sesquiphellandrene (0.05%), benzyl sulfide (0.06%), methyl linolenate (0.06%). | Bioactivity : Anti inflammatory | |
| | | | Benzoquinoline (1.76%), indole (1.18%), camphor (9.41%), eucalyptol (2.92%), caryophyllene oxide (14.18%), panasinsene (0.9%), selinene (4.94%), (-)-spathulenol (1.29%), phytol (5.75%), 2,6-disopropynaphthalene (3.75%), 2(1H)-naphthalene (0.9%), 1,3-disopropynaphthalene (2.39%), 1,4-disopropynaphthalene (4.31%), furan (3.04%), trans-2-(2-penteny)furum (0.9%), dibutylphthalate (2.75%), nonanal (3.32%), 2,4-decadienal (0.75%), 5-pyrimidinecarbonitrile (1.38%), α-glucopyranoside (1.15%), 3,4-dimethylinisole (2.3%), furazan-3-carboxamidine (0.9%), 1-naphthalenol (1.48%), oxirane (2.4%), 2-pentadecanone | Antioxidant, antibacterial, antifungal | [49] |
Plants

| Families        | Species                      | Local name | Used parts | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities                                      | References |
|-----------------|------------------------------|------------|------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------|
| Fabaceae        | Phyllanthus muellerianus     | stem bark  | Phyllanthus | (13.78%), 2-(2-fluorophenyl)isilane (1.25%), 2,4-dimethylthiosemicarbazide (1.76%), 2-ethylacidine (4.38%), octasiloxane (4.38%); Phenylethyl alcohol (0.05%), octanoic acid (0.08%), anisaldehyde (0.12%), 2-isopropylbenzoic acid (2.64%), p-propylanesole (0.16%), methyl p-anisat (0.43%), 2-cubebene (0.11%), 2-ethylacridine (1.16%), 2-E-isoeugenol (0.40%), α-humulene-4 (0.67%), 2-E-methyl isoeugenol (1.05%), β-bisabolene (0.13%), 2-ethylacridine (0.31%), α-copaen-11-ol (0.25%), elemicin (0.74%), 2-E-norerylodol (0.24%), spathulenol (0.19%), caryophyllene oxide (22.54%), salvial-4(14)-en-1-one (0.32%), ledol (0.35%), humulene epoxide II (2.04%), junenol (1.51%), isoelemicin (36.40%), α-cadinol (11.23%), epi-β-bisabolol (0.97%), oplopanone (0.26%), 6-methylanthranilic acid methyl ester (0.09%); | Traditional Medicine : tetanus                                                                 | [50]        |
| Fabaceae        | Dichrostachys cinerea(L.) Wight & Arn. | Seeds      | Dichrostachys | β-Pinene (0.1%), myrcone (0.3%), p-cymene (0.1%), limonene (0.1%), 1,8-cineole (2.3%), ethylene (0.2%), cis-linalool oxide (0.1%), ligustrac (5.1%), linalool (4.0%), cis-p-menth-2-en-1-ol (0.3%), α-campholenal (0.1%), trans-pinocarveol (0.7%), trans-p-menth-2-en-1-ol (0.3%), cis-verbenol (0.2%), trans-pinocamphone (0.4%), pinocarvone (0.1%), borrel (0.7%), cis-pinocamphone (0.8%), umbellulone (3.8%), terpinen-4-ol (7.5%), p-cymen-8-ol (0.3%), α-terpineol (3.3%), myrtenal (0.2%), myrtenol (1.1%), trans-piperitol (0.1%), trans-carveol (0.2%), nerol (0.2%), citronellol (0.3%), nerlal (0.2%), pipertone (0.3%), geraniol (18.2%), thymol (0.9%), methyl myrtenate (2.0%), carvacrol (0.7%), α-terpinyl acetate (0.3%), decanoic acid (2.8%), geranyl acetone (1.2%), elemicin (3.0%), isoaromadendrene epoxide (1.8%), caryophyllene oxide (1.1%), α-acoreol (1.0%), epi-α-murolol (0.7%), α-cadinol (1.4%), ageratocromene (0.8%), 3-oxo-β-ionone (0.9%), cypertundone (0.9%), (2E,6E)-farnesol (2.4%), (2E,6E)-farnesal (1.0%), (2E,6E)-farnesal (1.7%); | Spice                                                                                      | [32]        |
| Gramineae /     | Cymbopogon citratus (DC.)    | Fipagrass in | Cymbopogon | Myrcene (11.43%), Limonene (0.04%), (Z)-β-ocimene (0.27%), γ-terpinene (0.22%), 1,8-cineole (0.22%), Linalool (0.72%); | Traditional Medicine : Stomach ache, toothache, fever, sore nerves. | [53]        |
| Poaceae         |                              | Bandjoun    |            |                                                                                   |                                                                                   |            |

In Kenya, South Africa and Tanzania, the decoctions of the leaves and roots are used against venereal disease, eye injury, skin rash and pimple, snake bite, wound and as astringent, detoxifying, antalgic and aphrodisiac. The root is used for chest complaints and the twigs for gonorrhoea and syphilis. The smoke of the leaf and the root are used for pulmonary tuberculosis.
| Families     | Plants                      | Local name        | Used parts | Main Compounds                                                                                                                                                                                                                                                                                                                                 | Traditional Medicine usages and Bioactivities                                                                 | References |
|--------------|-----------------------------|-------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------|
| Lamiaceae    | Aeollanthus                 | aerial            | 3,6,6-trimethyl-2-Norpinene (0.5%), α-pinène (0.1%), Limonene                                                                                                                           | Traditional Medicine : spice in stomach, nausea, vomiting, fever, diarrhea, appendicitis, dysentery, ulcers, bowel, kidney infections                                                                                              | [56]       |
| Huaceae      | Afrostyrax lepidophyllus    | ‘bush onion’      | ‘bush onion’ | 1,2,4-Trithiolane (0.4%), 2,3,5-Trithialhexane (8.0%), Tris(methylthio)methane (0.1%), 2,3,4,6-Tetraithiheptane (1.2%), 2,3,5,7-Tetraithioactone (1.6%), 2,4,5,7-Tetraithiactone (52.9%), 3,6-Dimethyl-2,4,5,7-tetraithioactone (1.6%), 2,4,5,6,8-Pentathianonane (2.4%), 2,4,5,7,9-Pentathiadeacne (11.7%), 6-Methyl-2,4,5,7,9-Pentathiadeacne (10.8%), 2,4,5,7,8,10-Hexathiadeacne (0.2%), Eugenol (1.2%), Tetradec-1-ene (0.1%), n-Tetradecane (0.2%), 2,4-Bis(1,1-dimethylthyle)phenol (1.4%) | Spice remedy for child’s cough, heart rate, worms, constipation, hernia abscesses, and boils.                                                                                                                                  | [39]       |
|              |                            |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Bioactivity : Antibacterial                                                                                                           |            |
|              | Cymbopogon giganteus Chiiov. | Flowers, leaves, | Isocitrinal (0.30%), (E)-chrysanthenal (0.17%), Citronellal (0.15%), (Z)-chrysanthenol (1.17%), (E)-chrysanthenol (1.62%), Neral (30.21%), Geraniol (8.19%), Geranial (32.82%), Neryl acetate (0.86%), β-caryophyllene (0.06%), trans-a-bergamotene (0.07%), Eugenol (0.13%), 6-methyl-hept-5-en-2-one (0.96%), Undecan-2-one (0.17%), Tridecan-2-one (0.10%) [51]. | herpes, headache, bleeding, hyperglycemia, insect bites, cleaning blood, kidney infections [52]                                                                                                                                  |            |
|              |                            | stems             |            | Trans-p-methan-1(7),8-dien-2-ol (24.9%), terpinen-4-ol (0.4%), α-terpineol (0.2%), isopulegone (1.3%), isopiperitenol I (1.8%), p-methen-9-al (0.4%), isopiperitenol II (0.9%), verbeneone (0.2%), trans-carveol (4.8%), cis-p-methan-1(7),8-dien-2-ol (22.8%), cis-carveol (0.2%), carvone (1.8%), pipertone (0.1%), isomamy hexanoate (0.5%), carveone (0.2%), thymol (0.3%), isopiperitenone (0.3%), perillaldehyde (0.7%), perillyl alcohol (0.3%), β-caryophyllene (0.2%), α-humulene (0.1%), germacrene D (0.2%), carvyphylène oxide (0.1%), (E)-nerolidol (0.1%), (E,E)-farnesol (0.1%) [54]. | Traditional Medicine : rheumatism, fever, cough, skin disorders (decoctions of leaves and flowers) and arterial hypertension.                                                                 | [54]       |
|              |                            |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Bioactivity : Antibacterial                                                                                                           | [55]       |
|              |                            |                   |            | 1,2,4,6-Tetrathioheptane (0.1%), 2,3,4,6-Tetrathioheptane (1.2%), 2,3,5,7-Tetraithioactone (1.6%), 2,4,5,7-Tetraithioactone (52.9%), 3,6-Dimethyl-2,4,5,7-tetraithioactone (1.6%), 2,4,5,6,8-Pentathianonane (2.4%), 2,4,5,7,9-Pentathiadeacne (11.7%), 6-Methyl-2,4,5,7,9-Pentathiadeacne (10.8%), 2,4,5,7,8,10-Hexathiadeacne (0.2%), Eugenol (1.2%), Tetradec-1-ene (0.1%), n-Tetradecane (0.2%), 2,4-Bis(1,1-dimethylthyle)phenol (1.4%). |                                                                                                                                                                                   |            |

References:
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| Plants | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|--------|------------|------------|----------------|----------------------------------------------|------------|
| *Heliotropioide*<sup>1</sup> *Oliv* | parts | (0.1%), α-ocimene (0.1%), α-terpinene (0.1%), Amylvinylcarbinol (0.1%), Eucalyptol (0.1%), *Linalool* (38.5%), P-menth-1-en-8-ol (1.9%), Cis geraniol (0.3%), Trans geraniol (1.0%), Formate de linalol (0.1%), 3-allyl-6-methoxy (0.1%), Phenylethyl valerate (0.1%), 4-methyl-5-(2-methyl-2-propenyl) 2(5H)-furane (0.9%), (R)-massoia lactone (4.5%), Tetrahydro-6-pentyl 2H-Pyra-2-one (0.2%), Iso-caryophylylene (3.6%), Trans α-Bergamotene (0.2%), (2)-α-Farnesene (25.1%), α-caryophylene (0.2%), Germacrene D (2.0%), α-amorphene (0.1%), d-cadinene (0.1%), Cadina-1(10)-4-diene (0.3%), Spathulenol (0.1%), Nerolidol (0.1%), Isooromadendrene epoxide (0.1%), Cubenol (0.1%), α-cadinol (0.6%), (Z,E)-farnesol (0.1%), β-caryophylylene oxide (0.5%), 9-nonadecenol (0.2%), 9-E-hexadecen-1-01 (13.9%), 3,7,11-trimethyl-1,6,10-dodecatrien-3-ol (0.9%), 3,7,11-trimethyl-2,6,10-dodecatren-1-01 (0.2%), Farnesol (0.5%), Cis, trans farnesal (0.3%), 9-(3,3-Dimethyloxiran-2-yl)-2,7-dimethylnona-2,6-dien-1-01 (0.1%), 1,5,5,8-tetramethyl-12-oxabicyclo[9.1.0]dodeca-3,7-diene (0.1%), Oeledehyde (0.1%) | treatment of traditional soup and for seasoning meat, fish and maize against trypanosomiases and diarrhea | Bioactivity : Antifungal | \[57\] |
| *Hoslundia opposita* Vahl | Leaves, roots | α-Pinene (0.2%), Sabine (1.2%), β-Pinene (0.7%), Myrcene (0.2%), α-Phellandrene (<0.1%), Limonene (1.2%), (Z)-β-Ocimene (1.2%), (E)-β-Ocimene (<0.1%), Linalol (2.1%), Terpinen-4-0l (0.3%), α-Terpineol (0.6%), Thymol (1.2%), δ-Elemene (2.1%), α-Cubebebe (2.0%), α-Copaene (12.3%), β-Elemene (6.5%), α-Gurjumene (1.3%), β-Caryophylylene (10.3%), β-Gurjumene (1.8%), α-Humulene (1.7%), Germacrene D (15.1%), Bicyclogermacrene (4.3%), δ-Cadinene (10.5%), Germacrene B (6.6%), Spathulenol (1.2%), Caryophylylene epoxide (1.0%), Humulene epoxide (1.0%), T-Muurol (0.9%), T-Cadinol (1.6%), α-Cadinol (2.0%)[57]. | Antimalarial[58] | \[57\] |
| *Hyptis lanceolata* Poit. | fresh whole plant | α-Thujene (0.3%), α-Pinene (1.6%), Sabine (8.4%), β-Pinene (9.6%), α-Phellandrene (0.1%), α-Terpine (0.5%), p-Cymene (0.3%), Limonene (1.0%), (Z)-β-Ocimene (0.4%), (E)-β-Ocimene (1.9%), γ-Terpine (1.0%), Terpinolene (0.2%), (E)-Sabine hydrate (<0.1%), Linalol (1.0%), Camphor (0.1%), Terpinen-4-0l | treatment of respiratory tract infections | \[57\] |
**Plants**  

| Families | Species | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|----------|---------|------------|------------|----------------|-----------------------------------------------|------------|
| **Hyptis pectinata**  
(L.) Poit | Leaves | | (2.0%), α-Terpineol (0.5%), Thymol (<0.1%), α-Cubenene (0.2%), α-Copaene (0.7%), β-Bourbonene (2.1%), β-Elemene (7.2%), β-Caryophyllene (10.2%), Aromadendrene (0.4%), Amorphene (1.2%), (E)-β-Farnesene (0.3%), α-Humulene (1.7%), allo-Aromadendrene (1.0%), Guaiene (1.4%), γ-Muurolene (1.5%), Germacrene D (19.1%), Bicyclogermacrene (3.1%), (E,E)-β-Farnesene (0.4%), γ-Cadinene (1.6%), δ-Cadinene (3.7%), Nerolidol (0.4%), Spathulenol (1.5%), Caryophyllene epoxide (2.3%), Humulene epoxide (0.3%), T-Muurolol (0.6%), T-Cadinol (1.4%), Torreyol (1.1%), α-Cadinol (1.8%). | Insecticidal  
Traditional Medicine: protect cowpeas and sorghum against insects infestation. Infusions prepared with leaves are used against cough, bronchitis and headaches. Soaps, lotions, and perfumes made from the flowers, by the people of northern Nigeria, are part of baths or decoctions for the treatment of various skin diseases. In Central and eastern Africa, and also in Guinea, *H. spicigera* is cultivated and the oleaginous seeds are used. | [59] |
| **Hyptis spicigera** Lam | Flowers | | α-Pinene (14.0%), sabine + β-pinene (6.0%), α-phellandrene (4.0%), α-terpinene (0.2%), p-cymene (2.6%), β-phellandrene + 1,8-cineole (14.8%), terpinolene (0.3%), isoamyl isovalerate (2.0%), α-campholenal (0.2%), nopinone (0.1%), cis-sabinol (1.3%), α-phellandren-8-ol (0.5%), terpinen-4-ol (0.4%), p-cymen-8-ol (0.6%), α-terpinol (0.3%), myrtenal + myrtenol (0.7%), verbenone (0.1%), cuminaldehyde (0.4%), phellandral (0.3%), thymol (0.1%), carvacrol (0.4%), α-ylangene (0.3%), α-copaene (0.1%), β-bourbonene (0.1%), β-cubebene (0.2%), isocaryophyllene (0.2%), β-caryophyllene (23.4%), γ-elemene (0.2%), guai-6,9-diene (0.2%), α-humulene (1.3%), germacrene D (0.2%), bicyclosesquiphellandrene (0.1%), γ-cadinene (2.2%), δ-cadinene (0.6%), α-cadinene (0.2%), α-calacorene (0.5%), caryophyllene oxide (10.9%), 1-epi-cubenol (0.3%) | | [60] |
| Plants                      | Local name | Used parts | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities                                                                 |
|-----------------------------|------------|------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| **Families**                | **Species**| **Type**   | **Constituents**                                                              | **References**                                                                                         |
| **Hyptis**                  | suaveolens | fresh leaves | α-Thujene (0.5%), α-Pinene (1.3%), Camphene (0.7%), Sabinene (16.4%), β-Pinene (5.2%), Myrcene (1.3%), α-Phellandrene (<0.1%), 5-3-carenne (0.3%), α-Terpine (2.1%), p-Cymene (0.6%), Limonene (3.1%), (E)-β-Ocimene (<0.1%), γ-Terpine (3.7%), Terpinolene (8.4%), 1,8-Cineole (0.1%), Linalol (0.3%), Fenchol (0.3%), Camphor (0.3%), Terpinen-4-ol (7.8%), α-Terpineol (0.5%), β-Copaene (<0.1%), β-Elemene (0.6%), β-Caryophyllene (20.3%), Aromadendrene (3.5%), α-Humulene (0.4%), allo-Aromadendrene (1.3%), α-Selinene (1.2%), Bicyclogermacrene (2.5%), 5-Cadinene (0.2%), Spathulenol (1.0%), Caryophyllene epoxide (0.3%), Humulene epoxide (0.3%), T-Murolol (0.8%), T-Cadinol (0.5%), α-Cadinol (0.5%), α-Bisabolol (0.2%), Bergamotol (6.2%), (Z)-β-ocimene (0.11%), (E)-β-epoxyocimene (2.04%), 1,8-cineole (<29.04%), 5-isopropyl-2-methylbicyclo[3.1.0]hexan-2-ol (0.80%), fenchone (2.87%), trans-linalool oxide (furanoïd) (0.07%), linalool (19.07%), camphor (2.00%), terpinen-4-ol (7.53%), α-terpinol (2.31%), fenchyl acetate (endo) (0.12%), isobornyl acetate (0.17%), α-copaene (0.21%), β-elemene (0.67%), β-caryophyllene (0.42%), | are eaten like sesame. It is also recognized as a valuable biopesticide. |
| **Mentha**                  | piperita   | Leaves     | α-Pinene (0.3%), sabine (0.4%), β-pinene (0.7%), p-cymene (tr), β- phellandrene (5.8%), limonene (0.7%, neo-menthol (0.3%), menthol (10.0%), pulegone (0.6%), carvacrol methyl ether (2.3%), pipertone (67.5%), α-terpineol acetate (0.2%), β-cubebene (0.5%), α-bourbonene (0.6%), β-caryophyllene (1.9%), β-copaene (0.35%), α-Guaiane (0.2%), γ-cadinene (0.2%), 5-cadinene (0.1%), α-copaene (0.35%), Caryophyllene oxide (1.7%). | cure gastric disorder, toothache and muscular pains |
| **Ocimum**                  | americanum | Leaves     | α-Thujene (0.17%), α-pinene (1.66%), camphene (0.27%), sabine (0.49%), β-pinene (1.94%), myrcene (0.97%), α-terpine (0.32%), p-cymene (0.95%), limonene (~3%), (2)-β-ocimene (0.11%), (E)-β-ocimene (2.44%), δ-terpinene (0.70%), terpinolene (0.38%), perillene (0.14%), (E)-β-epoxyocimene (2.04%), 1,8-cineole (<29.04%), 5-isopropyl-2-methylbicyclo[3.1.0]hexan-2-ol (0.80%), fenchone (2.87%), trans-linalool oxide (furanoïd) (0.07%), linalool (19.07%), camphor (2.00%), terpinen-4-ol (7.53%), α-terpinol (2.31%), fenchyl acetate (endo) (0.12%), isobornyl acetate (0.17%), α-copaene (0.21%), β-elemene (0.67%), β-caryophyllene (0.42%), | anti- Anopheles funestus activity; anti - Plasmodium falciparum activity |

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| Plants | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|--------|------------|------------|----------------|-----------------------------------------------|------------|
| Ocimum basilicum L. | Zwitefua (Babungo) Cotimagin [8] | Leaves | *trans*-α-bergamotene (3.49%), aromadendrene (0.22%), α-humulene (0.51%), epi-bicyclesquiphellandrene (0.17%), germacrene-D (0.76%), bicyclogermacrene (0.30%), δ-guaiene (0.31%), α-cadinene (0.70%), calamenene (0.07%), δ-cadinene (0.30%), (E)-α-bisabolene (0.97%), spathulenol (0.12%), eugenol (8.01%), 1,2-dimethoxy-4-propenylbenzene (0.24%), (Z)-3-hexen-1-ol (0.17%), oct-1-en-3-ol (0.15%), (Z)-3-hexen-1-yl acetate (0.2%), octyl acetate (0.11%) | [51] |
| Ocimum gratissimum L. | Ossim in Bulu, Ewondo and Etion Masepu (south west) | dry leaves | Eugenol (0.1%), *thymol* (30.5%), *δ*-terpinene (33.0%), (Z)-β-ocimene (1.0%), α-thujene (4.8%), α-pinene (1.2%), sabine (0.6%), β-pinene (0.4%), myrcene (4.0%), α-phellandrene (0.4%), α-terpinene (4.5%), p-cymene (7.0%), limonene (1.1%), (E)-α-cadinene (0.3%), cis-sabinene hydrate (0.1%), p-cymene (1.0%), linalool (0.1%), borneol (0.1%), terpinen-4-ol (1.3%), α-terpineol (0.1%), carvacrol (0.3%), α-copaene (0.4%), β-caryophyllene (3.5%), α-humulene (0.3%), germacrene D | [64], [67], [66] |

**Bioactivities**

- **Spice**
  - Traditional Medicine: A decoction of the leaves is used to bath children who cry at night [65].
  - Bioactivity: Antibacterial
  - Anti-*Anopheles funestus* activity; anti-*Plasmodium falciparum* activity [51], antioxidant; antifungal; activity in cancer cells; anti-*Vibrio*; Toxic to crop weevils [63]

- **Bioactivities**
  - Pulmonary antisepticum, antitussivum and antispasmodicum [67]

- **Bioactivity**: Acaricidal, antibacterial, Antifungal, toxic to crop weevils [63]

- **Spice**
  - Traditional Medicine: A decoction of the leaves is used to bath children who cry at night [65].
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- **Bioactivities**
  - Pulmonary antisepticum, antitussivum and antispasmodicum [67]

- **Bioactivity**: Acaricidal, antibacterial, Antifungal, toxic to crop weevils [63]

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**References**

[51], [63], [64], [65], [66], [67]
| Plants                      | Local name                        | Used parts | Main Compounds                                      | Traditional Medicine usages and Bioactivities                                                                 | References |
|-----------------------------|-----------------------------------|------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------|
| Ocimum urticaefolium Roth   | Leaves                            |            | (0.1%), β-selinene (1.1%), α-selinene (0.3%), δ-cadinene (0.3%). | Bioactivity: Acaricidal Spice                                                                                | [64]       |
| Plectranthus glandulosus Hook.f. | Leaves                        |            | β-Pinene (0.6%), myrcene (2.2%), β-phellandrene (0.7%), β-3-carene (1.5%), β-terpine (0.8%), limonene (3.2%), trans-β-ocimene (0.6%), terpinolene (25.2%), β-thujone (30.8%), neral (0.8%), fenchol (1.5%), trans-p-menth-2-en-ol (0.5%), borneol (0.5%), p-cymene-8-ol (3.6%), oxide cis-piperitone (3%), oxide trans-piperitone (0.5%), thymol (0.4%), trans-2-hydroxyfiperitone (0.6%), 4-hydroxyfiperitone (0.7%), piperitenone (1.3%), piperitenone oxide (10.9%), isopulegone (1.8%), germacrene (1.4%). | [68]       |
| Thymus vulgaris L. Thym     | dry leaves                        |            | α-Thujene (0.9%), α-pinene (0.9%), camphene (0.9%), β-pinene (0.7%), myrcene (1.0%), α-terpinene (1.2%), p-cymene (30.9%), limonene (0.9%), δ-tapine (5.9%), trans-sabinene hydrate (0.7%), linalool (3.2%), camphor (1.6%), borneol (2.1%), terpinen-4-ol (1.2%), thymol (28.1%), carvacrol (2.6%), bornyl acetate (3.5%), α-copaene (0.5%), β-caryophyllene (4.6%), α-amorphone (0.3%), α-selinene (0.2%), δ-cadinene (0.7%), α-caryophyllene (0.7%) | Traditional Medicine: Antitussive action, infectious diseases, expectorant, antibrorncholic, antispasmodic, antismastic, antihelminthic, carminative, diuretic properties | [53] [71] |
| Vitex rivularis Gürke       | Melomeba Munjelenjékie (Pygmees of Bipindi) | Aerial part | 1-Octen-3-ol (2.2%), linalool (2.6%), 1-octen-3-yl acetate (0.2%), α-terpineol (0.3%), δ-elemene (0.4%), α-cubebe (0.3%), α-ylangene (0.4%), α-copaene (6.4%), β-bourbonene (0.6%), β-cubebe (0.2%), β-elemene (0.5%), isalatine (0.3%), cis-α-bergamotene (1.1%), β-caryophyllene (7.3%), δ-elemene (0.4%), trans-α-bergamotene (2.6%), α-humulene (2.6%), β-farnesene (2.4%), δ-murolene (3.2%), ar-curcumene (9.1%), δ-curcumene (7.8%), germacrene D (12.6%), β-selinene (0.8%), δ-selinene (0.8%), valencene (0.9%), α-selinene (0.6%), α- | Traditional Medicine: Tonic for newborns and in cases of epilepsy | [72]       |

References:
- [64] Bioactivity: Acaricidal Spice
- [68] Traditional Medicine: Against influenza, cough and chest complaints. Treatment of colds and sore throat. Bioactivity: Strong antifungal; strong insecticidal; anti-Aedes aegypti and anti-Anopheles gambiae activity
- [53] Traditional Medicine: Antitussive action, infectious diseases, expectorant, antibrorncholic, antispasmodic, antismastic, antihelminthic, carminative, diuretic properties
- [71] Bioactivity: Antibacterial Antifungal
- [72] Traditional Medicine: Tonic for newborns and in cases of epilepsy Bioactivity: Antifungal
| Families      | Species                  | Local name | Used parts | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities | References |
|--------------|--------------------------|------------|------------|--------------------------------------------------------------------------------|-----------------------------------------------|------------|
| Lauraceae    | Cinnamomum zeylanicum Blume | Leaves    |            | α-Pinene (0.36%), camphene (0.15%), myrcene (0.18%), δ-3-carene (0.27%), limonene (1.21%), (Z)-β-ocimene (0.45%), linalol (0.31%), iso-geraniol (0.14%), myrtenal (0.55%), linalol acetal (0.76%), hydroxy cinnomellal (1.25%), neryl acetone (1.11%), ethyl cinnamate (0.22%), hydro-cinnamaldehyde (0.62%), verbene (0.43%), β-cubebene (78.10%), botrydiol (0.11%), *phenethyl alcohol* (13.04%), *p*-tolualdehyde (0.14%). | anti-Anophelles gambiae activity [73]; antifungal [74]. | [73] [74] |
| Liliaceae    | Allium cepa L.           | Onion      | Red bulbs  | Diallyl sulfide (1.38 %), 2,5-dimethyl thiophene (0.82%), Octyl aldehyde (2.26%), phenylacetaldehyde (2.69%), 2-propenyl propyl disulfide (0.15), Trans-propenyl propyl disulfide (2.86%), Dipropyl disulfide (2.71%), 1-propenyl propyl disulfide (3.77%), 3,5-dimethyl-1,2,4-trithiolane (1.81%), Methyl propyl trisulfide (8.14%), Benzylcyanide (2.52%), Dimethyl tetrasulfide (1.32%), 2,5-Dimethylfuran (4.62%), *diallyl trisulfide* (22.17 %). | Spice [48] Diabetes, cough, rhumatism, filariosis, Hypertension, headache, asthma, infections, asthenia, goiter, gout, insect venom, cholestérol problem,… [52]. Bioactivity : Anti inflammatory. | [48] [52] |
|              | Allium sativum L.         | Garlic     | Red bulbs  | Phenolic compounds 2,4-dimethylthiophene (0.63%), Diallyl sulfide (7.10 %), Methyl propyl disulfide (1.19%), dimethyl trisulfide (0.58%), 2-Phenyl furan (0.48%), Limonene (0.62%), 2-propenyl propyl disulfide (0.20%), 2,5-dimethyl-1,3,4-thiadiazole (0.74%), *diallyl disulfide* (19.74 %) Linalool (0.88%), Dipropyl disulfide (0.62%), allyl methyl trisulfide (12.95 %), 3,4-Dihydro-3-vinyl-1,2-dithin (1.37%), Dimethyl tetrasulfide (1.59%), diallyl trisulfide (41.62 %), 3-Methoxyoctane (0.62%), Allyl propyl sulfide (1.30%), Di-1-propenyl sulfide (2.08%), p-methoxybenzylcyanide (0.85%), B- | Spice [48] Cough, Hypertension, asthma, infections, asthenia, goiter, gout, insect venom, cholestérol problem,… [52]. Bioactivity : Anti inflammatory. | [48] [52] |
| Families         | Species                  | Local name | Used parts | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities | References |
|------------------|--------------------------|------------|------------|--------------------------------------------------------------------------------|-----------------------------------------------|------------|
| Meliaceae        | Azadirachta indica A. Juss. | leaves     | Phenolic compounds | caryophyllene (0.23%), γ-cadinene (0.39%), diallyl tetrasulfide (4.22%) | Anti-trypansomia [55] | [75]       |
| Myrtaceae        | Callistemon citrinus (Curtis) Skeels | Leaves     | δ-Elemene (0.1%), α-copaene (0.2%), bourbonene (0.3%), β-elemene (0.9%), (E)-caryophyllene (2.4%), γ-elemene 1 (18.3%), α-humulene (0.4%), germacene D (0.5%), (E)-β-ionone (0.5%), δ-cadinene (0.2%), selina-3,7(11)-dieno (0.2%), germacrene B 2 (74%), (3Z)-hexenyl benzoate (0.3%) | Antibacterial Insecticide [76] |           |
|                   | Callistemon rigidus R.Br. | Leaves     | α-pinene (16.3%), myrcene (0.2%), p-cymene (0.5%), γ-terpinene (0.2%), 1,8 cineole (73.8%), linalool (0.3%), trans-pinocarveol (0.4%), borneol (0.2%), terpinen-4-ol (0.5%), α-terpineol (4.8%), alcohol (M 152) (0.4%), δ-bisabolene (0.2%), δ-cadinene (0.3%) | Anti-fungal, antimalarial [76] |           |
|                   | Callistemon viminalis (Sol. ex Gaertn.) G.Don | Bottlebrushor «rince» bouteille | Leaves | δ-3-Carene (8.61%), 2-methylpropylisobutyrate (0.44%), β-pinene (0.93%), isoamylacetate (0.12%), limonene (7.01%), 1,8 cineole 4 (58.49%), α-pinene (0.38%), ocimene (0.81%), β-linalool (11.00%), 4-terpinenol (0.79%), ociminenol (0.18%), α-terpinol (5.83%), eugenol (0.17%). | Traditional Medicine : Insecticidal, Bronchitis. Bioactivity : Antibacterial [77] |           |
| Eucalyptus        | Eucalyptus camaldulensis Dehn. | Leaves     | α-Thujene (0.12%), α-Pinen (5.47%), Camphene (0.03%), β-Pinen (0.21%), β-Mycene (0.30%), 1,8-Cineole (69.46%), β-Ocimene (0.01%), γ-terpinene (15.10%), Terpinolene (0.53%), 1-Terpinenol (0.03%), Limonene Oxide (cis) (0.01%), α-Terpineol (1.29%), trans-Carveol (0.02%), Geraniol (0.13%), Geranial (0.04%), α-Terpineol Acetate (1.31%), α-Gurjune (0.34%), β-Gurjunene (0.10%), Aromadendrene (1.72%), β-Selinene | Insecticidal, Antimalarial [78] |           |
### Plants

| Families         | Species                  | Local name | Used parts | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities | References |
|------------------|--------------------------|------------|------------|--------------------------------------------------------------------------------|-----------------------------------------------|------------|
| **Eucalyptus citriodora Hook.** | Leaves                   |            |            | (0.06%), γ-Cadinene (0.05%), Δ-Cadinene (0.07%), α-Calacorene (0.03%), Epi Globulol (0.29%), Globulol (2.00%), Viridiflorol (0.61%), β-Eudesmol (0.23%), α-Cadinol (0.05%), α-Pinene (0.13%), β-Pinene (0.30%), Myrcene (0.11%), Limonene (0.09%), 1,8-cineole (0.17%), Linalool (0.17%), Neo-isopulegol (1.90%), Isopulegol (4.40%), Citronellal (83.50%), Iso-isopulegol (Tr), Neo-isopulegol (Tr), Phenylethyl acetate (0.11%), Citronellol (1.85%), p-Mentha-3,8-diol (0.08%), Citronellyl acetate (1.10%), Methyleneugon (2.20%), Geranyl acetate (0.30%), γ-elemene (0.25%), Trans-caryophyllene (0.50%). | Insecticidal                                    | [79]       |
| **Eucalyptusglobulus Labill.** | Leaves                   |            |            | α-Pinene(20%), globulol (7.6%), caryophyllene oxide(16.2%), α-sesquiphellandrene (11.1%), camphor (10.3%), eucalyptol (10.2%). | Antioxidant, antifungal                         | [80]       |
| **Eucalyptus saligna Sm.** | Leaves                   |            |            | α-Pinene(39.4%),limonene (2.1%), 1,8-cineole (eucalytol) (9.8%), γ-terpinene (9.5%), p-cymene (31.1%),terpinen-4-ol (0.6%), α-terpinene (3.7%), carvacrol (1.7%). | Insecticidal, fungicidal                         | [44]       |
| **Psidium guajavaL Guava tree** | Leaves                   |            |            | 1-Hexanol (0.1%), α-Pinene (0.8%), Camphene (tr), β-Pinene (0.1%), Myrcene (0.6%), α-Phellandrene (tr), p-Cymene (0.1%), Limonene (42.1%), E-β-cimene (0.5%), γ-terpinene (0.2%), β-Cymene (tr), Terpinolene (tr), Terpinen-4-ol (0.2%), α-Terpineol (0.4%), E-piperitol (tr), Thymolmethyl ether (tr), Bornyl acetate (tr), Neryl acetate (0.1%), α-Longipinene (tr), α-Copaeno (2.2%), 2,6-Dimethoxyxymene (0.7%), Isoxycarophyllene (1.2%), β-Caryophyllene (21.3%), Aromadendrene (0.1%), α-Humulene (2.4%), allo-Aromadendrene (0.6%), 4,5-Di-epi-aristolochene (tr), γ-Murolene (0.1%), β-Selinene (3.7%), α-Selinene (3.6%), β-Bisabolene (0.1%), γ-Cadinene (0.04%), trans-Calamenene (1.1%), 5-Cadinene (0.8%), Cadina-1,4-diene (0.9%), α-Calacorene (0.2%), (E)-Nerolidol (2.3%), Caryophyllene oxide (2.2%), Viridiflorol (0.5%), 1-epi-Cubenol (0.1%), α-Cadinol (0.05%), α-Copaene (0.1%), 2,6-Dimethoxyxymene (0.7%), Isoxycarophyllene (1.2%), β-Caryophyllene (21.3%), Aromadendrene (0.1%), α-Humulene (2.4%), allo-Aromadendrene (0.6%), 4,5-Di-epi-aristolochene (tr), γ-Murolene (0.1%), β-Selinene (3.7%), α-Selinene (3.6%), β-Bisabolene (0.1%), γ-Cadinene (0.04%), trans-Calamenene (1.1%), 5-Cadinene (0.8%), Cadina-1,4-diene (0.9%), α-Calacorene (0.2%), (E)-Nerolidol (2.3%), Caryophyllene oxide (2.2%), Viridiflorol (0.5%), 1-epi-Cubenol (0.1%), α-Cadinol (0.05%), α-Copaene (0.1%), 2,6-Dimethoxyxymene (0.7%), Isoxycarophyllene (1.2%), β-Caryophyllene (21.3%), Aromadendrene (0.1%), α-Humulene (2.4%), allo-Aromadendrene (0.6%), 4,5-Di-epi-aristolochene (tr), γ-Murolene (0.1%), β-Selinene (3.7%), α-Selinene (3.6%), β-Bisabolene (0.1%), γ-Cadinene (0.04%), trans-Calamenene (1.1%), 5-Cadinene (0.8%), Cadina-1,4-diene (0.9%), α-Calacorene (0.2%), (E)-Nerolidol (2.3%), Caryophyllene oxide (2.2%), Viridiflorol (0.5%), 1-epi-Cubenol (0.1%), α-Cadinol (0.05%), α-Copaene (0.1%), 2,6-Dimethoxyxymene (0.7%), Isoxycarophyllene (1.2%), β-Caryophyllene (21.3%), Aromadendrene (0.1%), α-Humulene (2.4%), allo-Aromadendrene (0.6%), 4,5-Di-epi-aristolochene (tr), γ-Murolene (0.1%), β-Selinene (3.7%), α-Selinene (3.6%), β-Bisabolene (0.1%), γ-Cadinene (0.04%), trans-Calamenene (1.1%), 5-Cadinene (0.8%), Cadina-1,4-diene (0.9%), α-Calacorene (0.2%), (E)-Nerolidol (2.3%), Caryophyllene oxide (2.2%), Viridiflorol (0.5%), 1-epi-Cubenol (0.1%), α-Cadinol (0.05%), α-Copaene (0.1%), 2,6-Dimethoxyxymene (0.7%), Isoxycarophyllene (1.2%), β-Caryophyllene (21.3%), Aromadendrene (0.1%), α-Humulene (2.4%), allo-Aromadendrene (0.6%), 4,5-Di-epi-aristolochene (tr), γ-Murolene (0.1%), β-Selinene (3.7%), α-Selinene (3.6%), β-Bisabolene (0.1%), γ-Cadinene (0.04%), trans-Calamenene (1.1%), 5-Cadinene (0.8%), Cadina-1,4-diene (0.9%), α-Calacorene (0.2%), (E)-Nerolidol (2.3%), Caryophyllene oxide (2.2%), Viridiflorol (0.5%), 1-epi-Cubenol (0.1%), α-Cadinol (0.05%), α-Copaene (0.1%), 2,6-Dimethoxyxymene (0.7%), Isoxycarophyllene (1.2%), β-Caryophyllene (21.3%), Aromadendrene (0.1%), α-Humulene (2.4%), allo-Aromadendrene (0.6%), 4,5-Di-epi-aristolochene (tr), γ-Murolene (0.1%), β-Selinene (3.7%), α-Selinene (3.6%), β-Bisabolene (0.1%), γ-Cadinene (0.04%), trans-Calamenene (1.1%), 5-Cadinene (0.8%), Cadina-1,4-diene (0.9%), α-Calacorene (0.2%), (E)-Nerolidol (2.3%), Caryophyllene oxide (2.2%), Viridiflorol (0.5%), 1-epi-Cubenol (0.1%), α-Cadinol (0.05%), α-Copaene (0.1%), 2,6-Dimethoxyxymene (0.7%), Isoxycarophyllene (1.2%), β-Caryophyllene (21.3%) | Bioactivity : Antiradical, Antibacterial | [83]       |
| **Syzygiumaromaticum(L.) Merr. &** Clove buds |                           |            | p-Cymene (0.01%), terpinolene (0.03%), 1,8-cineole (0.03%), fenchone (0.03%), campholen (0.03%), carveal (0.01%), | Traditional Medicine : Increase of sperms density and motility[55]. Sore throat, laryngitis and swelling of the mouth, and it is used externally for skin ulcers, vaginal irritation and discharge. pain killer, against pulmonary and stomach troubles, as laxative, as well as against diarrhea, dysentery and hemorrhoids. It is furthermore used for the treatment of cutaneous and subcutaneous parasitic infections, to improve the menstrual cycle and against small pox, chicken pox and measles. | [81,82]    |
| Families       | Species                        | Local name | Used parts                      | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities | References |
|---------------|--------------------------------|------------|---------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------|------------|
|               | L.M.Perry                      |            |                                 | geraniol (0.35%), eugenol (87.62%), dihydrouugenol (0.21%), isoeugenol (0.67%), eugenylacetate (0.05%), δ-elemene (0.09%), β-caryophyllene (5.88%), ep()-caryophyllene (0.05%), α-gurjunene (0.02%), germacrene D (0.02%), β-selinene (0.08%), β-bisabolene (4.41%), δ-cadinene (0.05%), elemol (0.02%), spathulenol (0.14%), gaiolol (0.02%), cubenol (0.04%), γ-eudesmol (0.01%), β-bisabolol (0.04%), 3(E)-hexenol (0.01%), 4-heptanol (0.02%). |                                                |           |
| Piperaceae     | Piper capense L.f.             | Fruits, leaves, stems | α-Thujene (0.1%), α-pinene (10.5%), camphene (0.3%), sabine (14.7%), β-pinene (59.3%), myrcene (1%), δ-3-carene (tr), α-terpinene (0.1%), p-cymene (1.2%), (Z)-β-ocimene (0.1%), (E)-β-ocimene (0.2%), γ-terpinene (0.1%), terpinolene (0.1%), sabine hydrate (0.1%), linalol (0.1%), camphor (0.1%), borneol (tr), terpinene-4-ol (0.3%), α-terpinol (0.2%), thymol (0.5%), bornyl acetate (0.1%), α-Cubebeene (tr), α-copaene (0.2%), β-cubebeene (0.1%), β-caryophyllene (3.4%), (E)-β-farnesene (tr), α-humulene (0.1%), valencene (0.1%), germacrene D (2.5%), β-bisabolene (0.3%), γ-cadinene (tr), δ-cadinene (0.1%), (E,E)-α-farsenene (0.6%), germacrene B (0.1%), (E)-nerolidol (0.2%), spathulenol (tr), epia-bisabolol (1.4%), α-cadinol (tr). | Bioactivity: Antifungal | [84]       |
|               | Jove, Il [85]                  | Leaves, fruits, seeds | α-Pinene (1.8%), Camphene (4.8%), β-Pinene (9.2%), β-Phellandrene (2.3%), 3-Carene (2.2%), D-Limonene (0.9%), p-Cymene (1.2%), α-Copaene (1.5%), Camphor (2%), Linalool (41.8%), β-Elemene (2.1%), Caryophyllene (3.6%), Aromadendrene (1.5%), Isoborneol (2.4%), α-Humulene (1.4%), α-Terpineol (4.1%), γ-Elemene (1.2%), 3,5-Dimethoxytoluene (10.9%), Safrole (1.6%), Caryophyllene oxide (1.6%), Elemol (0.9%), Guaiol (1%) [86]. | Traditional Medicine: Tooth decay, fontanelle [52] Respiratory infections, female infertility, aphrodisiac [15], bronchite, gastrointestinal diseases, venereal diseases and rheumatism Bioactivity: Antifungal, anticancer. | [86]       |
|               |                            |            |                                 | pinene (6.7%), myrcene (2.5%), α-phellandrene (4.5%), δ-3-carene (18.5%), β-terpine (0.9%), p-cymene (0.7%), limonene (14.7%), (E)-β-ocimene (0.1%), γ-terpinene (1%), terpinolene (1.2%), sabine hydrate (0.3%), linalool (0.7%), terpinene-4-ol (2%), α-terpinol (0.2%), δ-elemene (1.7%), β-cubebeene (0.2%), α-copaene (1.4%), β-cubebeene (1.3%). | Spice | [84]       |
| Plants | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|--------|------------|------------|----------------|-----------------------------------------------|------------|
| **Piper umbellatum** L. | Ekongo (Oroko), Dibakubokula wonja (Douala) [8] | Fruits | α-Thujene (tr), α-pinene (12.3%), camphene (0.7%), β-pinene (21.2%), myrcene (1.7%), α-Fellandrene (tr), p-cymene (0.5%), Limonene (5.5%), (Z)-β-ocimene (0.3%), (E)-β-ocimene (tr), γ-terpinene (0.3%), terpinene (0.8%), linalol (14.4%), camphor (1.4%), borneol (1.9%), terpinen-4-ol (1.4%), α-terpinol (2.1%), α-Cubebecene (0.2%), β-cubebepe (1.0%), β-caryophyllene (4.2%), α-Gurjunene (tr), (Z)-β-farnesene (0.1%), α-humulene (0.9%), Allo-Aromadendrene (7.5%), γ-Muurolene (tr), α-Curcumene (0.9%), β-Zingiberene (0.8%), Bicyclogermacrene (0.9%), β-Selinene (2.0%), γ-cadinene (0.3%), δ-cadinene (0.9%), (E.E)-farnesol (0.1%), α-cadinol (0.6%), Myristicine (1.5%). | Spice | [84] |
| **Rutaceae** | Citrus aurantifolia L. | Leaves and epicarp | LEAVES α-pinene (0.49%), Sabine (0.52%), Myrcene (3.14%), Octen-3-ol (1.49%), Limonene (48.96%), (E)-β-ocimene (2.99%), Isoctammene (0.77%), α-pinene oxde (1.48%), terpinen-4-ol (0.54%), Terpineol (0.03%), Myrtenal (0.42%), Neral (2.99%), Geraniol (10.53%), Geranial (3.93%), Bornyl acetate (14.18%), Geranyl acetate (2.45%), α-cedrene (2.6%), Aromadendrene (0.38%), Bicyclogerumacere (0.7%), Cadina-1,4-diene (0.03%), Germacrene B (0.53%). | Traditional Medicine : Some farmers use leaves of Citrus sp. to protect stored food products against undesirable microorganisms [87]. Bioactivity: Antifungal Anticancer, Antimalarial, antimicrobial [55] | [87] |
| | | | EPICARP α-thujene (0.31%), α-pinene (2.44%), Camphene (0.21%), Octen-3-ol (1.45%), Δ3-carene (0.5%), Limonene (59.09%), Δ-terpinene (0.59%), Terpinolene (1.22%), Cis-hydrate sabineine (7.53%), α-pinene oxde (1.45%), Borneol (0.41%), terpinen-4-ol (3.48%), Myrtenol (5.00%), Myrtenal (0.35%), Nerol (0.82%). | | |
| Plants | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|--------|------------|------------|----------------|----------------------------------------------|------------|
| Citrus grandis (L.) Osbeck | Leaves | Neral (4.15%), Geraniol (0.98%), Geranial (5.61%), α-cedrene (0.83%), β-caryophyllene (0.83%), Cis-β-guaiene (0.08%), Bicyclogermacrene (1.01%), Germacrene D (1.20%) | Antimicrobial, antimalarial | [73] |
| Citrus limon (L.) Osbeck | Pericarp | Methylnaphthalene/eugenol (0.07%), α-thuyene (0.12%), α-pinene (0.30%), δ-3-carene (0.17%), sabinen (4.23%), β-pinene (0.03%), β-phellandrene (0.08%), Z=β-ocimene (1.06%), α-terpinene (0.23%), E-sabinene hydrate (0.12%), linalool I oxide (0.03%), linalool (0.02%), limonene I oxide (0.06%), myrtenal (0.34%), α-pinene oxide (0.07%), γ-terpinol (0.37%), carvone (0.27%), carveol (0.11%), neral (0.08%), nerol (0.12%), linalyl acetate (0.06%), geraniol (0.04%), bornyl acetate (0.05%), β-elemene (0.23%), β-caryophyllene (0.14%), (E,E)-α-bergamotene (0.08%), bicyclogermacrene (0.05%), γ-cardinene (0.23%), globulol (0.06%), octanal (2.07%) | Bioactivity: Anthelmintic, Anticancer, Antimalarial, antimicrobial [55] | [88] |
| Citrus medica L. lime, lamassì (Bangangte) [8] | Leaves | α-pinene (0.43%), furfuryl acetate (3.49%), α-terpinene (0.25%), Z-β-ocimene (33.03%), α-fenchocamphorone (2.76%), citronellal (0.22%), pinocarvone (1.76%), iso-geranial (1.23%), bornyl acetate (4.49%), geraniol (13.36%), sabinyl acetate (5.23%), nerlyl formate (20.52%), isobomyl propanoate (5.01%), β-silphiperfolan-6-ol (0.2%), juniperol (0.63%), α-cubebene (2.04%), cyperene (0.45%), coumarin (2.34%), decanal (0.01%), dodecanol (0.36%) | Bioactivity: Antimicrobial, antimalarial | [73] |
| Plants | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|--------|------------|------------|----------------|-----------------------------------------------|------------|
| Citrus reticulata Blanco | Pericarp of the fruit | Methyl-naphthalene I (0.07%), α-thuyene (0.44%), α-pinene (1.31%), sabinene (0.16%), β-pinene (1.10%), myrcene (1.10%), β-phellandrene (0.29%), δ-3-carene (0.06%), α-terpinene (0.32%), limonene (76.14%), linalool-1-oxide (0.23%), linalool (0.71%), α-pinene oxide (0.05%), myrtenyl (0.44%), γ-terpinene (0.80%), carveol (0.09%), nerol (0.12%), bornyl acetate (0.08%), thymol (0.16%), santalene (0.80%), β-caryophyllene (0.06%), γ-cardinene (0.15%), octanal (1.54%), octanol (14.14%) [90]. | Bioactivity: Antheminhic Antimicrobial, antimalarial [55] | [90] |
| Citrus sinensis L. | Leaves, Pericarps from ripe fruits | 3-methyl cyclohexan-1-ol (1.21%), α-pinene (0.11%), β-pinene (20.69%), α-terpinene (7.45%), limonene (5.02%), E-β-ocimene (5.02%), α-fenchocamphorone (18.62%), campholenaldehyde (0.99%), α-terpinol (12.1%), α-terpinol (0.13%), citronellol (3.52%), genarol (1.37%), geranial (3.02%), nonenal (2.77%), thymol (0.65%), nonenal acetate (0.3%), 3-methylpentenol (0.48%), Z-trimetal (2.96%), fokienol (0.25%), α-copaene (0.85%), β-copaene (1.22%), acoradiene (0.55%), δ-cadinene (0.76%), α-corocalene (0.14%), isomyl geranate (0.4%), acorenol B (0.95%), eugenol (1.62%), saphthulencol (0.21%), α-eudesmol (0.57%), β-bisabolonol (0.2%), pentyl-benzene (2.46%), cinnamyl-acetate (0.25%), meta-toluoldehyde (1.51%). | Bioactivity: Antimicrobial, antimalarial [73] | [73] |
| Clausena anisata (Willd.) Saman Hook.f. ex Benth. | Fresh leaves | α-thujene (0.1%), α-pinene (0.2%), sabinene (0.6%), β-pinene (0.3%), myrcene (2.0%), α-terpinene (tr), p-cymene (2.9%), limonene (0.4%), 1,8-cineole (0.2%), (Z)-β-ocimene (0.4%), (E)-β-ocimene (2.2%), α-pinene oxide (0.05%), myrtenyl (0.44%), γ-terpinene (0.80%), borneol (0.09%), nerol (0.12%), bornyl acetate (0.08%), thymol (0.16%), santalene (0.80%), β-caryophyllene (0.06%), γ-cardinene (0.15%), octanal (1.54%), octanol (14.14%) [90]. | Bioactivity: Antimalarial protection against insects [7] | [7] |
| Families | Species | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|----------|---------|------------|------------|----------------|-----------------------------------------------|-----------|
| Vepris heterophylla (Engl.) Letouzey | Kounikoutcho um (Guiziga, Mofou), Hohoum (Zoulgo), Gougouvetche (Mafa), Kotokolhi (fulfulde) | Leaves | (0.1%), β-sesquiphellandrene (tr), germacrene B (0.3%), spathurolen (0.1%), humulene epoxide II (tr), epi-α-muurolol (tr), α-cadinol (tr) [75], α-Thujene (0.4%), α-pinene (0.1%), sabinene (14.0%), β-pinene (0.3%), myrcene (4.2%), α-phellandrene (0.1%), α-terpinene (0.8%), cyrene (0.5%), limonene (4.3%), (Z)-β-ocimene (0.7%), (E)-β-ocimene (14.0%), γ-terpinene (1.3%), terpinolene (1.6%), allo-ocimene (0.3%), pregeijerene (0.2%), cis-sabinene hydrate (0.11%), linalool (0.9%), cis-p-menth-2-en-1-ol (0.1%), trans-p-menth-2-en-1-ol (tr), terpine-4-ol (3.3%), α-terpineol (1.7%), α-thujene (0.4%), α-pinene (0.1%), sabinene (14.0%), β-pinene (0.3%), myrcene (4.2%), α-phellandrene (0.1%), α-terpinene (0.8%), cyrene (0.5%), limonene (4.3%), (Z)-β-ocimene (0.7%), (E)-β-ocimene (14.0%), γ-terpinene (1.3%), terpinolene (1.6%), allo-ocimene (0.3%), pregeijerene (0.2%), cis-sabinene hydrate (0.11%), linalool (0.9%), cis-p-menth-2-en-1-ol (0.1%), trans-p-menth-2-en-1-ol (tr), terpine-4-ol (3.3%), α-terpineol (1.7%), methyl salicylate (0.2%), safrole (3.0%), neryl acetate (tr), geranyl acetate (tr), ethyl eugenol (0.3%), bicycloelemene (tr), α-cubebene (tr), γ-lyangene (0.4%), α-copaene (0.3%), β-bourbonene (tr), β- elemene (0.8%), (E)-caryophyllene (3.1%), β-copalene (0.3%), γ-elemene (0.1%), 10-epi-γ-eudesmol (0.11%), γ-eudesmol (1.26%), β-eudesmol (0.73%), α-eudesmol + valerianol (1.78%), bulnesol (1.7%) | Traditional Medicine : Malaria, edematous disorders and hypertension[91], Bioactivity : Antiparasitic, antimicrobial | [92] |
| Zanthoxylum leprieurii Guill. & Perr. | Bongo Elongo Djanelang, Melan (Bamiléké) Fasa kuwari, Melen (Bafou) | Fruits | β-Mycene (0.16%), α-phellandrene (0.10%), δ-3-carene (0.11%), p-cymene (0.29%), limonene (0.26%), (Z)-β-ocimene (0.73%), (E)-β-ocimene (77.36%), γ-terpinene (0.07%), linalool oxide cis (0.14%), p-cresol (0.27%), terpinolene (0.84%), linalool (0.53%), cis-thujone (1.06%), fenchol endo (0.3%), alloocimene (0.07%), limonene oxide (0.24%), sabirol trans (0.56%), borneol (0.28%), pinocamphenol (0.26%), menthol (0.09%), terpinen-4-ol (0.12%), α-terpineol (0.16%), methylchavicol (0.32%), trans pulegol (0.12%), nerol (0.12%), isobornylformate (0.08%), isogeijerene C (0.17%), geraniol (0.28%), carvacrol (0.59%), terpinyl acetate trans-dihydro-α (0.16%), α-cubebene (0.24%), eugenol (0.14%), β-cubebeene (0.33%), β elemene (0.16%), α-gurjunene (0.20%), α-cis bergamotene (0.18%), γ-elemene | Traditional Medicine : stomach disorders, gonorrhrea, intestinal parasites and sterility sickle cell anemia [94], Bioactivity : Some components were found to be moderately active against lung carcinoma cells (A549), colorectal adenocarcinoma cells (DLD-1) and normal cells (WS1) [15] | [94] |
| Plants                      | Local name         | Used parts | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities                        | References |
|-----------------------------|--------------------|------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------|------------|
| Zanthoxylum zanthoxyloides | Gah-tchou          | Fruits, Roots, Seeds, bark and leaves | (0.14%), β-humulene (0.27%), (Z)-β-farnesene (0.26%), α-humulene (0.16%), γ-muurolene (0.20%), germacrene D (0.07%), β-selinene (0.11%), α-selinene (0.10%), α-bulnesene (0.07%), γ-cadinene (0.22%), cadina-1,4-diene (0.75%), α-(E)-nerolidol (0.07%), spathulenol (0.13%), globulol (0.44%), viridiflorol (0.11%), guaiol (0.10%), γ-eudesmol (0.15%), α-cadinol (0.14%), bulnesol (0.10%), caladene (0.09%), apiole (0.12%), n-octadecane (0.12%) [94]. | α-Thujene (0.24%), camphene (0.11%), sabinenene (0.23%), β-pinenene (0.08%), β-myrcene (0.50%), α-phellandrene (0.10%), α-cymene (2.00%), myrcenol (2.00%), limonene (1.00%), 1,8-cineole (0.07%), (Z)-β-octimene (0.26%), (E)-β-octimene (0.35%), γ-terpinene (0.40%), terpinolene (0.11%), linalool (1.50%), cis-thujone (0.12%), fenchol endo (2.50%), pinene hydrateciscis (0.06%), alloocimene (2.00%), limonene oxide (0.10%), trans-sabinol (0.35%), isopulegol (3.00%), citronellal (2.25%), isoborneol (2.22%), borneol (0.09%), pinocampheol (0.19%), menthol (0.27%), terpinen-4-ol (2.00%), α-terpineol (0.09%), myrtenol (0.27%), methylchavicol (0.41%), trans-pulegol (0.15%), nerol (0.07%), β-citronellol (40.00%), nerol (1.00%), geranial (9.00%), safrone (0.07%), pregeijerene (0.20%), thymol (0.22%), carvacrol (0.12%), eugenol (0.08%), nerylacetate (0.80%), α-ylangene (0.09%), α-copaene (0.28%), β-bourbonene (0.70%), β-elemene (0.22%), longifolene (0.08%), α-cis-bergamotene (10.07%), β-gurjunene (0.07%), (Z)-β-farnesene (10.08%), α-humulene (0.10%), alloaromadendrene (0.07%), γ-muurolene (0.16%), germacrene D (0.16%), β-selinene (0.16%), α-selinene (0.12%), α-bulnesene (1.20%), β-bisabolene (0.11%), γ-cadinene (0.12%), δ-cadinene (1.00%), cadina-1,4-diene (0.08%), α-cadinene (0.14%), elemol (0.14%), (E)-nerolidol (1.00%), spathulenol (1.00%), globulol (0.54%), viridiflorol (0.13%), guaiol (0.21%), humulene epoxide (0.29%), 10-epoxy-eudesmol (0.50%), dill apiole (0.11%), γ-eudesmol (0.40%), hinesol (0.13%), cubenol (0.42%), α-muurolol (0.42%), α-cadinol (1.00%), bulnesol (0.10%), caladene (0.30%), apiole | [94] |

References: [94], [95]
| Families       | Species            | Local name | Used parts          | Main Compounds                                                                 | Traditional Medicine usages and Bioactivities | References |
|---------------|--------------------|------------|---------------------|-------------------------------------------------------------------------------|-----------------------------------------------|------------|
| Verbenaceae   | Lantana camara L. | Flowers and leaves | (3.00%), epi-α-bisabolol (0.19%), carophyllene acetate (0.21%), trans farnesol (0.40%), n-octadecane (0.10%), (Z,E) farnesyl acetate (0.11%), totarene (0.17%) | Traditional Medicine: Rheumatism, coughs and colds, relieve dyspnoea and suffocation. The whole plant shows antimalarial activity. | [96]        |
|               |                    |            |                     | α-Pinene (0.3%), Camphene (tr), β-Pinene (0.6%), Sabinene (0.1%), Myrcene (tr), α-Phellandrene (tr), Limonene (0.1%), 1,8-Cineole (0.1%), γ-Terpine (tr), (E)-β-Ocimene (tr), p-Cymene (0.1%), Terpinolene (tr), Bourbonene (tr), Linalool (0.3%), β-Cubebene (0.2%), Sesquihulene (1.1%), α-Cedrene(0.6%), β-Elemene (1.3%), β-Caryophyllene (13.3%), Aromaderene (0.3%), (E)-β-Farnesene (0.9%), α-Humulene (1.4%), γ-Curcumene (2.2%), Germacrene-D (0.9%), Zingiberene (2.7%), β-Bisabolene (0.7%), α-Murololene (0.4%), β-Curcumene (1.4%), δ-Cadinene (0.3%), ar-Curcumene (24.7%), Geraniol (0.5%), Cubebol (0.3%), Caryophyllene epoxide I (2) (1.5%), Caryophyllene epoxide II (2) (7.1%), Nerolidol (0.2%), Humulene epoxide (0.7%), Zingiberenal (1.8%), Spathulenol (1.5%), T-Cadinol (1.0%), T-Murolol (0.2%), α-Bisabolol (0.3%) | [96]        |
|               |                    |            |                     | α-Pinene (0.404%), α-Thuiene (1.138%), β-Pinene (tr), Sabinene (0.312%), 3-carene (0.107%), α-Phellandrene (tr), α-Terpine (1.327%), Limonene (3.212%), β-Phellandrene (0.361%), α-Terpine (6.419%), Z-ocimene (0.082%), p-Cymene (13.854%), terpinolene (0.079%), Fenchone (0.099%), 1-octen-3-ol (0.071%), E-limonen oxide (0.180%), Z-β-Terpineole (0.190%), Camphor (0.002%), Linalool (0.377%), 3-Aminopyrazole (3.304%), Caryophyllene (3.508%), TeRpinen-4-ol (0.628%), Umbellulone (0.126%), β-Farnesene (2.640%), α-Caryophyllene (0.076%), M-tet-butylphenol (1.186%), β-Cubebene (0.112%), Verbeneone (0.722%), Carvone (1.883%), Thymol Acetate (15.207%), Para-thymol (0.955%), Piperitone (0.077%), Caryophyllene oxide (0.389%), Triacetin (9.131%), Eugenol (0.079%), Thymol (22.0147%), Carvacrol (3.264%). | Insecticidal, Antimicrobial | [99]        |
| Lippia adoensis Hochst. ex Walp. | *Ligi or Gossolli* (in Fulfulde language) or “Fever Tea” in northern Cameroon [98]. | Leaves |                     | Traditional Medicine: indigestion, rheumatism, fever, cough and jaundice [100]. | [10]        |
| Lippia rugosa A.Chev. | Gossolhi (Adamaoua) | Leaves, Flowers | (Z)-3-hexanol (0.02%), (E)-1-hexen-3-ol (0.02%), Hexanol (0.08%), 1-octen-3-ol (0.07%), Camphene (0.05%), β-Pinene (0.01%), Myrcene (1.59%), p-Cymene (0.01%), Limonene (0.04%), (Z)-β-Ocimene (0.03%), (E)-β-Ocimene (0.02%) | Insecticidal, Antimicrobial | [10]        |

References:
[96] Fogang et al.; JPRI, 33(42A): 163-207, 2021; Article no. JPRI, 72567
| Plants                                                                 | Local name | Used parts               | Main Compounds                                                                                                                                   | Traditional Medicine usages and Bioactivities                                                                 | References |
|----------------------------------------------------------------------|------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------|
| Zingiberaceae                                                        | Aframomum citratum (J.Pereira) K.Schum. | Seeds                    | terpinene (tr), terpinolene (0.02%), 1,8-cineole (0.04%), (Z)-linalool oxide (furanoid) (0.03%), (E)-linalool oxide (furanoid) (0.06%), (E)-sabinene hydrate (tr), citronellal (0.15%), linalool (4.56%), linalyl acetate (0.09%), citronellyl formate (0.24%), citronellyl acetate (0.06%), nerol (1.14%), geranyl formate (0.08%), borneol (tr), nerol (18.6%), geranial (10.4%), α-terpinene (0.08%), nerol acetate (0.14%), geranyl acetate (1.35%), citronellol (0.03%), geraniol (51.5%), isogeraniol (0.16%), β-bourbonene (0.04%), β-elemene (0.04%), β-caryophyllene (0.76%), (E)-β-farnesene (3.43%), α-cubenene (0.05%), bicyclogermacrene (0.09%), α-cadinene (tr), germacrene D (1.16%), isocaryophyllene oxide (0.28%), Caryophylyene oxide (0.12%), nerolidol (0.15%), α-murolol (0.29%), farnesol (0.25%) [100]. | Traditional Medicine: sterility in women, schizophrenia, believed to have a positive effect on the sympathetic nervous system. a general agreement between local Cameroonian populations that the plant brings strength and peace to families with twins [101]. Fruits, bark and leaves are applied against fever, intercostals pains, as tonic and as aphrodisiac [55]. Bioactivity: Antimicrobial Traditional Medicine: sterility in women, schizophrenia, believed to have a positive effect on the sympathetic nervous system. a general agreement between local Cameroonian populations that the plant brings strength and peace to families with twins [101]. | [11]        |
|                                                                      | Aframomum dalzielii Hutch. (Endemic [102]) | Seeds, Pericarp, Rhizome, Leaves | Myrcene (0.1%), β-phellandrene (0.1%), (Z)-β-ocimene (0.4%), (E)-β-ocimene (0.4%), 1,8-cineole (0.1%), linalool (0.1%), α-terpineol (0.3%), dihydrocarveol acetate (neosiclo) (0.1%), (Z)-β-farnesene (0.3%), ar-curcumene (0.1%), (E,E)-α-farnesene (0.2%), β-bisabolene (0.1%), (E)-nerolidol (91.2%), α-bisabolol oxide (0.4%), α-bisabolol (0.3%), (2E,6E)-farnesyl acetate (0.1%), O-guaiacol (0.2%), 2-phenylethyl acetate (0.5%), (E)-cinnamyl acetate (0.3%), 2-heptanol (0.1%), 2-heptylacetate (2.8%), acetyl acetate (0.1%), |                                                                                                                  | [101]       |
| Plants | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|--------|------------|------------|----------------|---------------------------------------------|------------|
| **Families** | **Species** | | | | |
| Aframomum | *daniellii* (Hook.f.) | ‘African cardamom’ | Seeds | decyl acetate (0.7%). α-Thujiene (tr), α-pinene (2.9%), camphene (tr), sabinene (0.5%), β-pinene (11.2%), dehydro-1,8-cineole (0.3%), myrcele (0.3%), α-phellandrene (0.1%), α-terpine (0.1%), p-cymene (0.7%), limonene (1.5%), 1,8-cineole (48.8%), (E)-β-ocimene (0.1%), y-terpine (1.0%), terpinolene (0.1%), 2-methyl butyl-2-methyl butyrate (tr), trans-pinocarveol (tr), bornol (tr), δ-terpineol (0.4%), p-mentha-1,5-dien-8-ol (0.4%), terpinen-4-ol (0.3%), α-terpinene (10.8%), myrtenol (0.1%), thymol, methyl ether (tr), carvacrol, methyl ether (0.4%), thymol (tr), carvacrol (0.1%), α-terpinyl acetate (0.2%), α-copaene (0.3%), β-cubebene (tr), β-elemene (1.1%), cyperene (0.1%), (E)-caryophyllene (0.7%), α-trans-bergamotene (0.8%), α-guaiene (0.8%), α-humulene (0.3%), (E)-β-farnesene (0.1%), γ-gurjunene (0.7%), selina-4,11-diene (1.0%), β-selinene (1.0%), γ-muurolene (0.6%), α-bulnesene (1.2%), β-bisabolene (3.2%), δ-cadinene (tr), (E)-nerolidol (88.0%), guaiol (tr), 10-epi-γ-eudesmol (0.7%), eremoligenol (0.2%), β-eudesmol (1.3%), eudesmol (0.2%), neo-intermedeol (0.2%), intermedeol (0.4%). | Spices Traditional Medicine : the seeds are used as laxative and anthelmintic, and the root as purgative | [32] |
| | | | | | |
| | *letestuanum* Gagnep. | Seeds, Pericarp | 1,8-Cineole (tr), linalool (2.2%), β-cubebene (0.5%), (E)-β-caryophyllene (0.2%), β-cadinene (0.2%), (E)-nerolidol (88.0%), caryophyllene oxide (1.1%), humulene epoxide II (1.3%), α-bisabolol oxide (1.0%), (2E,6E)-farnesol (tr), (2E,6E)-farnesyl acetate (tr), 2-phenylethyl acetate (0.3%), 2-heptyl acetate (0.7%), octyl acetate (0.8%). | Spices Traditional Medicine : the seeds are used as laxative and anthelmintic, and the root as purgative | [101] |
| | *melegueta* K.Schum. | Alligator pepper; Ketchou (Bangante) Ndôn (Bassa) Ndondo’a | Seeds | Isopentyl acetate (tr), 2-methyl butyl acetate (tr), 2-heptanone (tr), 2-heptanol (0.2%), α-thujene (tr), α-pinene (2.0%), α-fenchene (0.1%), camphene (0.3%), sabinene (tr), β-pinene (7.1%), dehydro-1,8-cineole (0.1%), myrcene (0.2%), α-phellandrene (0.3%), α-terpine (0.3%), p-cymene (1.1%), limonene (1.5%), 1,8-cineole (58.5%), (E)-β-ocimene (0.1%), y- | Spices Traditional Medicine : the seeds are used as laxative and anthelmintic, and the root as purgative | [75] |
| Plants | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|--------|------------|------------|----------------|-----------------------------------------------|------------|
| Families | Species | | | | |
| | | | terpinene (0.9%), terpinolene (0.8%), α-cymenene (0.2%), 2-nonenone (tr), linalool (tr), n-nonanal (tr), endo-fenchol (0.3%), α-campholenal (tr), trans-pinocarveol (0.2%), cis-β-terpineol (tr), pinocarvone (tr), borneol (0.2%), p-mentha-1,5-dien-8-ol (1.1%), terpinene-4-ol (1.4%), cis-pinocarveol (tr), cryptone (tr), p-cymen-8-ol (tr), α-terpineol (19.4%), myrtenal (0.2%), myrtelon (0.2%), γ-terpineol (tr), trans-carveol (tr), cis-carveol (tr), thymol methyl ether (tr), carveone (tr), carvacrol methyl ether (tr), (E)-cinnamaldehyde (tr), phellandral (0.1%), thymol (0.1%), carvacrol (0.5%), α-terpinyl acetate (tr), (E)-caryophyllene (tr), isoamyl benzoate (tr), α-humulene (tr), β-selinene (tr), 7-epi-α-selinene (tr), 10-epi-γ-eudesmol (tr), γ-eudesmol (tr), β-eudesmol (0.2%), α-bisabolol (tr), n-tricosane (0.1%) | | |
| | | | | | |
| Aframomum | pruninum | Gagnep. | Seeds, | | Traditional Medicine : sterility in women, schizophrenia, and is believed to have a positive effect on the sympathetic nervous system. There is a general agreement between local Cameroonian populations that the plant brings strength and peace to families with twins [101]. | [101] |
| | | | Pericarp, | | | |
| | | | Leaves, | | | |
| | | | Rhizome | | | |
| | | | | | | |
| Curcuma | longaL | Curcuma | Rhizome | α-Phellandrene (3.95%), p-cymene (0.58%), terpinolene (0.43%), 1,8-cineole (2.79%), (Z)-α-farnesene (0.7%), ar-curcumene (0.3%), (E,E)-α-farnesene (0.3%), β-bisabolene (0.3%), (E)-nerolidol (95.1%), α-bisabolol (0.5%), (2E, 6E)-farnesol (0.3%), octyl acetate (0.2%). | | |
| | | | | | | |
| Zingiber | officinale | Roscoe | Ginger | α-pinene (4.1%), camphene (11.9%), 2,6-pinene (0.3%), 6-methyl-5-hepten-2-one (1.1%), B-myrcene (1.7%), 1-phellandrene (0.6%), sabinenol (12.0%), 1,8-cineole (5.3%), α-terpinolene (0.4%), 2-nonanone (0.6%), α-terpineolene (1.7%), citronellal (0.4%), endo-borneol (1.9%), β-fenchyl alcohol (0.8%), 6-octen-1-ol, 3,7-dimethyl (0.9%), z-citral (8.21%), Geraniol (2.6%), geranial (10.0%), 2-undecanone (0.8%), citronellyl | | |

Bioactivities | References |
|-------------|------------|
| Antibacterial | [103] |
| Antimicrobial | | |
| Anti-inflammatory, anticancer, and antioxidant | | |
| Antimicrobial, anti-inflammatory, antioxidant, immunomodulatory | | |
| Plants | Local name | Used parts | Main Compounds | Traditional Medicine usages and Bioactivities | References |
|--------|------------|------------|----------------|---------------------------------------------|------------|
| Families | Species | | acetate (0.3%), ar-curcumene (2.5%), germacrene (0.8%), zingiberene (14.0%), farnesene (4.4%), β-bisabolene (2.6%), β-sesquiphellandrene (4.8%) | neuroprotective, hepatoprotective | [104]. |
Fig. 1. Distribution of plants per family

Fig. 2. Percentages of usage of plants
Fig. 1 shows the proportions of the families of plants. We noticed that the Lamiaceae were the most represented with 16%, followed by Annonaceae (12%), Rutaceae (11%), Asteraceae (11%), Myrtaceae (10%), and Zingiberaceae (9%). These 6 families alone represent 75% of all the listed plants.

The Table 1 also presents the main traditional uses of these plants as well as the demonstrated biological activities. We have identified 84 situations (diseases, symptoms, syndromes and food) for which these plants are used. Fig. 2 shows the percentage of 25 recurrent situations for which these plants are used or for which biological activities have been demonstrated. Infectious diseases occupy the first rank of uses with 12.62%, followed by spices (6.46%), fungal infections (6.15%) and malaria (5.85%). These four uses alone represent 31.08%.

4. CONCLUSION

This review presented an exhaustive report of essential oil plants found in Cameroon, as well as their use in traditional medicine and their demonstrated biological activities. However, many of them remain extremely underexploited in terms of their essential oil content. The latter represent a real advantage, both medicinal and economic, for the populations in particular and for Cameroon in general. A good selection of the most important plants from the point of view of the composition of their essential oils, with the objective of cultivating them on a large scale, would allow Cameroon to rank among the African and world producers of essential oils and develop its pharmacopoeia.

DATA AVAILABILITY STATEMENT

The data presented in this study are available on request from the corresponding authors.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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