



One Health
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DIVERSITY, CHEMICAL COMPOSITIONS AND BENEFICIAL EFFECTS OF SOME SPICES AND AROMATIC LEAVES CONSUMED IN BENIN AND IN THE WORLD: CRITICAL REVIEW

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Introduction (1/3)

The history of spices begins 4000 years before our era, in the southwestern region of India.



It is almost the entire history of humanity that scrolls through the quest for spices **(Brette, 2019)**.

In addition



aromatic plants play a very important role in

agrifood industry sector

perfumery

pharmaceutical industry

(Bruneton, 1993)



Introduction (2/3)

IN BENIN



Aromatic plants and spices



are used in many traditional culinary recipes not only to enhance the taste of food but also for their nutritional and medicinal qualities, of which populations have empirical knowledge (**Imorou, 2015**).



Introduction (3/3)

To contribute to a better knowledge of these spices and aromatic leaves, it is essential to take stock of the spices and aromatic herbs which have antioxidant, antimicrobial and anti-inflammatory activities for a better valuation.

Therefore, this present review explores three major spices and three aromatic herbs used in Benin and in the world with the aim of providing a reference document to researchers who are involved in improving the nutritional and health status of humans.



Materials and methods (1/2)

Material



Ginger (*Zingiber officinale*)



Cucuma (*Curcuma domestica*)



Clove (*Syzygium aromaticum*)



Laurel (*Laurus nobilis*)



Rosemary (*Rosmarinus officinalis*)



Parsley (*Petroselinum crispum*)



Materials and methods (2/2)

methods

The methodology used is that of documentary research oriented towards the consultation of previous scientific documents that have highlighted the different pharmacological activities of the different species of spices and aromatic plants targeted.



Results and discussions (1/10)

In the course of our study, we identified some twenty spices and aromatic herbs commonly used in the world. Some spices and aromatic herbs some of which are presented below



Dill (*Anethum graveolens* L.)



Fennel (*Foeniculum vulgare*)



Cinnamon (*Cinnamomum zeylanicum*)



Cumin (*Cuminum cyminum* L.)



Caper (*Capparis spinosa* L.)



Cardamom (*Elettaria cardamomum* L.)



Star anise (*Illicium verum*)



Clove (*Syzygium aromaticum* L.)



Ginger (*Zingiber officinale*)



Results and discussions (2/10)

Table 1: Spices commonly used in Benin (Akpo et al., 2016)

	Common name	Local name	Scientific name
Spices			
	Anise	Pleple	<i>Pimpinella anisum</i>
	Chile	Takin	<i>Capsicum sp</i>
	Cinnamon	Cinnamon	<i>Cinnamomum zeylanicum</i>
	Clove	AtinkinKpadotà	<i>Eugenia caryophyllus</i>
	Cumin	Ha	<i>(Cuminum cyminum L)</i>
	Dill	Sokounnou	<i>Anethum gravealens</i>
	False nutmeg	Sassagbakun	<i>Monodora myristica</i>
	Garlic	Ayo	<i>Allium sativum</i>
	Guinea pepper	Kpédjlélékun	<i>Xylopia aethiopica</i>
	Ginger	Dotè	<i>Zingiber officinalis</i>



Results and discussions (3/10)

Table 2: Aromatic herbs commonly used in Benin (Akpo et al., 2016)

	Common name	Local name	Scientific name
Aromatic herbs	African basil	Tchioyo, tchiayo	<i>Ocimum gratissimum</i>
	Celery	Celery	<i>Apium gravealens</i>
	Citronela	Timan	<i>Cymbopogon citrates</i>
	Laurel	Lorieman	<i>Laurus nobilis</i>
	Mint	Manti	<i>Aquatic mentha</i>
	Parsley	Parsley	<i>Petroselinum crispum</i>
	Rosemary	Rosemary	<i>Rosmarinus officinalis</i>



Results and discussions (4/10)

Chemical Composition and Biological Properties of spices and herbs aromatics

Cucuma (Curcuma domestica)

The chemical study of *Curcuma domestica* reveals the existence of curcuminoids responsible for the coloring and pharmacological properties of this spice, of an essential oil containing a multitude of terpene compounds and various secondary compounds. (Bruneton, 1993).

The major part of these listed activities is attributed to curcumin, and this in particular

anti-inflammatory antioxidant anti-cancer

(Lonchamp, 2002)





Results and discussions(5/10)

Clove (Syzygium aromaticum)

Table 3: The main chemical constituents of *Syzygium. Aromaticum* (Goetz et al., 2012)

Clove

Family of constituents	Detail of constituents
Tannins (12%)	Galic and ellagic tannins, gallic acid, protocatechic acid, eugenin, casuarictin, 1,3-di-O-galloyl-4,6- (S) - hexahydroxydiphenoyl-beta-D-glucopyranose, tellimagrandine
Flavonoids (0.4%)	Quercetin, kaempferol, rhamnetin, eugenitin
Chromones	Biflorine, isobiflorine, glycosides, chromone
Fat body	Sterols, sterolic glycosides, fatty oil (10%)
Others	Phenol acids, triterpenes



Results and discussions (6/10)

CLOVE

Powerful antiseptic

Strong antioxidant power

antifungal properties on various mycoses
(cutaneous, oral, unguinal)

(Barbelet, 2015 ; Dean and Lue, (2005)

CLOVE ESSENTIAL OIL

Anti-infectious
(antibacterial, antiviral, antifungal)

Uterine tonic

General stimulant

Eupeptic and antispasmodic (Valnet, 1984)



Results and discussions (7/10)

Laurel (*Laurus nobilis*)

Several flavonoids and their derivatives have been determined in bay leaf extracts such as, and



O-glycosides

lactones

catechins

sesquiterpene

alkaloids

procyanidins

vitamin E

anthocyanins

(Skerget, 2005; Tanaka, (2006)

Laurel produces a remarkable essential oil very rich the above secondary metabolites but still too little used in aromatherapy



Results and discussions (8/10)

The essential oil of Laurel noble, very harmonious biochemically, is obtained by distillation of its leaves with water vapor. It has multiple properties that are :

analgesic

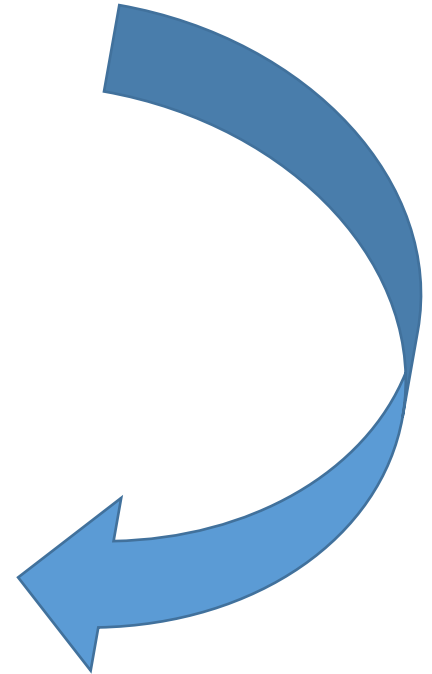
mucolytic

antispasmodic

anti-infectious activity

nervous system regulator

broad spectrum antimicrobial activity





Results and discussions (9/10)

Parsley (*Petroselinum crispum*)

Parsley (*Petroselinum crispum*) is one of the most produced plants in the world, it contains significant amounts of vitamins, especially vitamin C, minerals, essential oils, chlorophyll, polyphenols, carotenoids, monoterpene hydrocarbons and other bioactive compounds (**Dobričević, 2019 ; Kuźma, 2014**).

PARSLEY

would be diuretic

anticancer properties

antioxidant

deodorant

anti-inflammatory

pro-apoptotic effects

reduce gastric oxidative

antianemic



Results and discussions (10/10)

Forms of Use of Spices and Aromatic Herbs

Aspects Still Poorly Studied in Spices and Aromatic Herbs they do not

Throughout literature research, you noticed that there has been extensive research on the benefits and use of spices and aromatic herbs

Nevertheless, there are still several areas that they are relatively under

studied. Some of these include:

Synergistic effects

Dosage and safety

Quality control

Mechanisms of action and

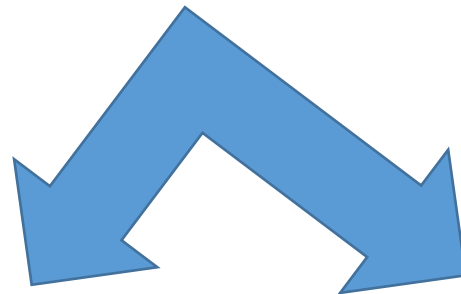
Interactions with medication



Conclusions and recommendations (1/2)

Taken together, this review further established that spices and aromatic plants are classified as medicinal plants and are widely used for human consumption, thus contributing to food security.

The spices and herbs studied contain



FLAVONOIDS, TANNINS

COUMARINS, ALKALOIDS

STEROIDS, TERPENES

SAPONINS, POLYPHENOLS



Conclusions and recommendations (2/2)

The different chemical compounds contained in the spices and aromatic herbs highlighted in this review have many beneficial potentials to prevent and diseases with a nutritional effect.

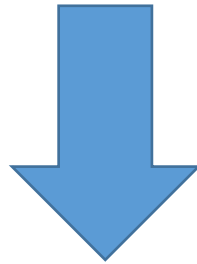
This chemical groups can alone or in a possible synergy of action give it therapeutic properties, antiseptics, antioxidants and organoleptics.

Taking into account the information obtained in the course of this study, we can recommend the use the spices and aromatic plants instead of seasoning broths rich in Monosodium Glutamate (MSG).



Perspectives

Considering the diversity of spices and aromatic herbs, it seems clear that many aspects have been poorly studied.



To this effect from Research into the active compounds and biological properties contained in the spices and herbs presented in the material is currently underway.



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Thank you for your attention!

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