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Chemical Composition of the Essential Oils Extracted from Two Annonaceae Required in Beninese Pharmacopeia

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Abstract: The aromatic vegetable secretions obtained by hydrodistillation from the leaves and fruit of *Xylopia aethiopica* and *Annona senegalensis* were studied by GC / MS. Different chemical compositions marked by significant proportions of some compounds are obtained. The main components of the essential oil of *X. aethiopica* are: b-pinene (8,5-46,1%), sabinene (9,8-41,8%), 1,8-cinéole (5,3-23,8%), a-thujene (5,3-12,6%), a-pinene (5,3%), g-terpinene (6,2%), *trans*-pinocarvéol (6,6-12,2%), *cis*-sabinol (6,7%), *trans*-verbénol (5,0%), pinocarvone (5,2%), terpinen-4-ol (9,2-30,8%), myrténol (9,1-13,7%), myrténal (7,4-17,1%), a-eudesmol (6,0%), élémol (5,1-11,9%) and vélérianol (7,7-10,6%). The essential oil of *A. senegalensis* contains mostly linalool (7,2-7,3%), (Z)-b-ocimene (6,0%), (E)-b-ocimene (6,6%), germacrene-D (6,5-14,2%), caryophyllene oxide (12,6%), intermédéol (6,5%), b-caryophyllene (5,3-8,8%), palmitic acid (6,6). The majority compounds constitutive of the two varieties of Annonaceae are not identical.

Key words: essential oil, *Xylopia aethiopica, Annona senegalensis*, terpinen-4-ol, myrténal, germacrene-D, caryophyllene oxide

INTRODUCTION

Xylopia aethiopica is a very wide-spread aromatic species in western, central and southern africa (Somova and al., 2001). The fruit of *X. aethiopica* consumed as condiment in the soup accelerates the production of the milk among women after childbirth. It is effective against the cough, the evils of stomach, the bronchitis, the hepatic affections and the dysentery (Baure and al., 1966; Fish and Waterman, 1971; Addae-Mensah and Sofowora, 1979; Iwu, 1993; Gouillerot and al., 1996).

Several studies in recent years have reported different chemical compositions of essential oil extracted from fruits and leaves of *X. aethiopica*. In 2003, Tatsadjieu and al. identified in the fruits of *X. aethiopica* the presence of b-pinene (18,3%), terpinen-4-ol (8,9%), sabinene (7,2%), a-phellandrene (7,1%). Investigations carried out by Karioti and al. (2004) on the essential oil obtained from different organs from *X. aethiopica* brought back the presence of significant proportions of germacrene-D in the leaves (24,4%), fresh fruits (19,4%) and dry (25,1%) and *trans*-meta-mentha-1(7), 8-diene in the roots (30,4%) and stem bark (30,7%). Sabinene and it b - pinene are the principal compounds of the volatile extract of the fruits coming from Benin (Ayédoun and al., 1996).

The species *Annona senegalensis* is a buissonnant (bushy?) shrub whose leaves with glaucous aspect are aromatic. This botanical species produces edible fruits. The decoct derived from the leaves cure snake bites, generalized eodemes, aches and constipation (Akoègninou and al., 2006). The leaves of *Annona senegalensis* possess medicinal virtues proved by important works of biological research among which the activities

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antidrepanocitory (Mpiana *et al.,* 2007), antitrypanosomic (Ogbadoyi E. O., 2007), antidiarrheic (Suleiman M. M., 2008). among the compounds identified in this plant, Rupprecht *et al*.(1990) and Sahpaz *et al*.(1994) reported that the genus Annona (Annonaceae) is characterized by presence of acetogenins. Nébié also showed into 2006 that the essential oil of leaves of *Annona senegalensis* collected in Burkina Faso contains the germacrene-D (19,0 %) and b-caryophyllène (19,0 %).

The aim of this work being to accentuate the commercial value of the volatile extracts of the leaves and fruits of *Xylopia aethiopica* and *Annona senegalensis* urging in Benin and to compare them with those other countries described in the literature in order to try a chemical classification of these two species.

MATERIALS AND METHODS

Plant materials:

Fresh and dried fruits with leaves of *X. aethiopica* and *A. senegalensis* were collected from localities located at the south of Benin between 2007 and 2008. They were identified and certified at the National Herbarium of the University of Abomey-Calavi.

Phytochemical analysis:

The leaves and fruit were stored in the laboratory at 18-20°C throughout the extraction work. The essential oils were obtained by water distillation of the leaves and fruit (300g) for tree hours in a Clevenger type apparatus. They were dried over anhydrous sodium sulphate and analysed by GC-MS.

GC/MS: The essential oils were analysed on a Hewlett-Packard gas chromatograph Model 7890, coupled to a Hewlett-Packad MS model 5875, equipped with a DB5 MS column (30m X 0,25mm; 0,25µm), programming from 50°C (5 min) to 300°C at 5°C/mn, 5 min hold. Helium as carrier gas (1,0 mL/min) ; injection in split mode (1:30) ; injector and detector temperature, 250 and 280°C respectively. The MS working in electron impact mode at 70 eV; electron multiplier, 2500V; ion source temperature, 180°C; mass spectra data were acquired in the scan mode in *m/z* range 33-450.

GC/FID: The essential oils were analysed on a Hewlett-Packard gas chromatograph Model 6890, equipped with a DB5 MS column (30m X 0,25mm; 0,25µm), programming from 50°C (5min) to 300°C at 5°C/min, 5min hold. Hydrogen as carrier gas (1,0 mL/min); injection in split mode (1:60); injector and detector temperature, 280 and 300°C respectively. The essential oil is diluted in hexane: 1/30.

The compounds assayed by GC in the different essential oils were identified by comparing their retention indices with those of reference compounds in the literature and confirmed by GC-MS by comparison of their mass spectra with those of reference substances (Rösch *et al*., 1999; Adams, 1989; Swigar and Silverstein 1981).

RESULTS AND DISCUSSIONS

The proportions of essential oil in the fruit and leaves of *X. aethiopica* were significant (0,30 to 2,15%) while in *A. senegalensis*, the average yield is low and ranges between 0,014 and 0,022% (Table 1). These values show that *X. aethiopica* is an aromatic vegetable species (fruit in particular) rather rich in essential oil.

Table 1: Yields of essential oil of *X. aethiopica* and *A. senegalensis*

Espèce aromatique	*X. aethiopica*	*A. senegalensis*								
Lieu et date de récolte	A 24/10/07	B 29/12/07	$H_1$02/01/08	K 10/01/08	T 20/02/08	$H_2$17/10/07	T_1 24/10/07	Z 20/10/07	M 17/10/07	H 14/04/07
Organe	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	F_{10}
Rendement	1,16±0,01	1,25±0,01	0,90±0,01	2,01±0,02	2,09±0,01	0,54±0,01	2,15±0,02	0,30±0,01	0,014±0,001	0,022±0,001

A = Adangban, B = Banigbé, H_1 = Hêgo, H_2 = Hounsa, K = Kitigbo, T = Tchaada, T_1 = Tchaada, Z = Zoungodo, M= Malé, H= Hounsa, (F_1, F_2, F_3, F_4, F_5) = fruit, (F_6, F_7, F_8, F_9, F_{10}) = Feuille

Table 2 lists the compounds identified by GC / MS in the essential oils extracted from leaves and fruits of *X. aethiopica* and for *Annona senegalensis*. The samples (F1 to F8) of X. aethiopica are formed by 30 to 48 components represented 91,7 to 99,6% of the total weight of the essential oil. They are characterized by a high proportion of hydrogenated and oxygenated monoterpenes (63,1 to 69,1% in leaves and 87,5% to 98,8% in fruits). These are accompanied by a relatively high proportion of oxygenated sesquiterpenes (21,8 to 28,3%) in essential oils extracted from leaves of X. aethiopica. The essential oil of the sample F2 does not contain sesquiterpene compounds (0%).

In the fruits, the principal chemical components (³ 5%) identified are: a - thujene (5,3%), a-pinene (4,2-5,3%), sabinene (9,8-41,8%), b-pinene (8,1-10,2%), 1,8-cinéole (5,3-23,8%), g - terpinene (6,2%), *trans* - pinocarvéol (6,6-12,2%), cis-sabinol (6,7%), *trans* - verbénol (5,0%), pinocarvone (5,2%), terpinen-4-ol (9,2-

30,8%), myrténol (9,1-13,7%), myrténal (13,2-17,1%) and vélérianol (10,6%).Only the essential oil extracted extracted from fruits harvested to Tchaada (F_5) contains a strong proportion of terpinen-4-ol (30,8%).This last one is dominant with regard to that of terpinèn-4-ol (6,6 %) determined by Asékun and Adéniyi in the essential oil of Nigeria then by Boyom and al. in that (0,49 %) of Cameroon (2003). The variation observed between the proportions of the terpinèn-4-ol of the three areas could be reported to ecophysiological factors, genetic or environmental according to the results of work of Bourkhiss *et al*..(2009). Several authors (Tchoumbougnang *et al*., 2009; Oussou *et al*., 2004 and 2008; Alitonou *et al*. 2004; Asekun and Adeniyi, 2004) pointed out that the presence of 1,8-cineole and terpinen-4 - ol to appreciable percentages (in synergy with other compounds) gives some essential oils biological properties (antidiarrheal, antimicrobial, larvicidal, antibacterial, antifungal or antitumor) highly prized in traditional medicine in Benin.

The essential oil obtained from the leaves of *X. aethiopica* is, as for it, marked by the presence of the majority compounds (³ 5%): a-thujene (8,0-12,6%), b-pinene (28,7-46,1%), myrténal (7,4-7,7%), élémol (5,1-11,9%), a-eudesmol (6,0%) and vélérianol (7,7-10,6%).

The analysis of the proportions reported showed that no majority compound exceeded 50% of the total weight of the essential oil of *X aethiopica*.This observation would indicate a strong distribution of the percentages between several components of the samples studied. It was noted the absence of a - pinene in the essential oil samples extracted from the leaves F6, F7, F8 but which are remarkably rich in b-pinene (28,7-46,1%). Also, the traces of 1,8-cinéole (0,1-1,1%) are indicated in the leaves of *X. aethiopica* while the essential oil samples coming from the fruits (F1 with F5) are characterized by the absence of élémol and vélérianol.

In view of the results, divergences are observed between the areas target as well from the point of view of the variability of the compounds identified from essential oils as their proportions.These divergences also extend being preceding chemical studied on the essential oils extracted from the fruits and leaves coming from Benin (Ayédoun, 1996), Nigeria (Asekun and Adeniyi, 2004) and from Cameroun (Boyom *et al.,* 2003).

In the samples (F9, F10) of essential oil obtained from the leaves of Annona *senegalensis*, 32 to 38 compounds (respectively 88,8% to 95,8% of the total weight of the volatile extract) were identified. The essential oil extracted from the species *Annona senegalensis* is especially marked at the same time by the presence of compounds monoterpenoïc (18,6-42,2%) and sesquiterpenoïc (51,1-62,9%).

The aromatic extract from the leaves gathered in the area of Malé (F9) contains relatively high proportions of sesquiterpenes hydrogenated (30,8%) and oxygenated (32,1%).The majority compounds (³ 5%), dominated especially by derivatives sesquiterpenic, are formed by linalol (7,3%), the germacrène-D (6,5%), the caryophyllene oxide (12,6%), the intermédéol (6,5%), the palmitic acid (6,6%) and b-caryophyllene (5,3%).

In essential oil of A.*senegalensis* extracted the leaves collected to Hounsa, the hydrogenated monoterpenes and sesquiterpenes became more important, respectively 31,8% and 36,7%. The essential oil of leaves collected on tree identified in Hounsa is as for it, rich in (Z)-b-ocimene (6,0%), (E)-b-ocimene (6,6%), b-caryophyllene (8,8%), germacrene-D (14,2%), linalol (7,2%) and caryophyllene oxide (5,1%). The compound 3E-hexénol (0,6%) is the only aliphatic alcohol represented in F10.The presence of palmitic acid has been reported to the state of trace (1,4%) in the sample F10. It was noted in the samples F9 and F10 the presence of the germacrène-D and b - caryophyllene but in small proportions compared to those of the volatile extract studied by Nébié in 2006. Indeed, these last compounds appeared of some traces in the oils essential F1and F8 are more significant proportions in the leaves picked to Hounsa than compared to those of Malé.

Except isomers of b-ocimene of the sample F10 and palmitic acid found in the volatile extract F9, b-caryophyllene, germacrene-D, linalol and caryophyllene oxide are the majority compounds common to the samples F9 and F10 whose percentages of linalol are neighbors (respectively 7,3% and 7,2%).

Table 2: chemical compositions of volatile extracts of *X. aethiopica* and *A. senegalensis*

Composés identifiés	IK	*X. aethiopica*								*A. senegalensis*	
		A	B	H_1	K	T	H_2	T_1	Z	M	H
		F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	F_{10}
3E-hexénol		-	-	-	-	-	-	-	-	-	6
tricyclène	922	6	-	-	-	-	-	-	-		
α-thujène	930	53	10	4	12	20	126	1	80	-	25
a-pinène	934	-	26	42	47	53	-	-	-		
camphène	946	1	-	-	-	-	-	-	-		
thuja-2,4(10)-diène	954	-	-	4	-	-	-	-	-		
sabinène	979	418	22	98	-	147	17	18	19	-	9

Table 2: Continue

b-pinène	972	81	45	11	102	47	461	389	287	-	-
cis-méta-mentha-2,8-diène	987	-	-	-	-	-	12	31	-	-	-
myrcène	991	6	-	-	-	-	-	-	-	-	50
2,6-diméthyl-2-heptanol	992	-	-	-	-	-	17	-	-	-	-
para-mentha-1(17),8-diène	999	1	-	-	-	-	-	2	-	-	-
a-phellandrène	1002	2	-	-	-	8	-	1	-	-	34
a-terpinène	1017	3	12	3	14	36	-	1	2	-	-
1,4-cinéole	1021	2	-	-	-	-	-	7	-	-	-
ortho-cymène	1025	-	-	-	-	-	2	11	4	36	37
para-cymène	1026	-	20	6	14	18	-	-	-	-	-
limonène	1027	18	-	-	-	-	2	-	2	9	31
b-phellandrène	1028	-	-	-	-	-	-	-	-	-	6
sylvestrène	1031	-	-	3	9	14	-	-	-	-	-
1,8-cinéole	1035	238	158	165	140	53	10	1	11	-	19
(Z)-b-ocimène	1032	-	-	-	-	-	8	-	6	-	60
(E)-b-ocimène	1043	-	-	-	-	-	-	-	-	-	66
g-terpinène	1055	4	20	5	-	62	-	2	2	-	-
g-pinène	1060	-	-	-	25	-	-	-	-	-	-
cis-hydrate de sabinène	1067	27	10	13	-	-	2	10	2	-	-
2-acétyl thiophène	1078	-	-	-	-	-	2	-	-	-	-
2,3-diéthylpyrazine	1081	1	-	-	-	-	-	1	-	-	-
cis-linalool oxyde	1083	1	-	-	-	-	-	t	-	-	-
trans-oxyde de linalol	1086	-	-	2	-	-	-	-	-	-	-
terpinolène	1089	-	-	-	5	16	-	-	-	-	-
trans-hydrate de sabinène	1098	-	-	13	-	-	-	-	-	-	-
linalol	1100	31	8	4	-	10	2	11	31	73	72
a-fenchocamphone	1102	-	-	8	-	-	-	-	-	-	-
cis-thujone	1107	1	-	-	-	-	-	t	-	-	-
6-camphénol	1110		-	1	-	-	-	-	-	-	-
cis-para-menth-2-èn-1-ol	1121	1	9	9	-	9	-	-	-	-	-
a-campholène aldéhyde	1125	1	-	-	-	-	-	7	-	-	-
chrysanthénol	1126	1	-	-	-	-	-	1	-	-	-
a-campholénal	1132	-	17	9	14	-	-	8	5	-	-
nopinone	1137	t	21	41	21	-	-	4	3	-	-
trans-pinocarvéol	1139	2	-	122	66	32	-	7	33	-	-
trans-sabinol	1142	-	-	-	-	-	10	-	-	-	-
cis-sabinol	1143	-	67	-	-	-	-	-	-	-	-
trans-verbénol	1144	2	17	50	16	-	4	6	17	-	-
E-myroxide	1152	1	-	-	-	-	-	-	-	-	-
iso-isopulégol	1155	-	-	-	-	-	-	7	2	-	-
sabinacétone	1156	3	21	20	18	2	-	10	-	-	-
pinocarvone	1160	3	24	52	19	-	4	-	22	-	-
oxyde de b-pinène	1161	-	29	-	-	-	-	-	-	-	-
d-terpinéol	1168	5	-	-	-	-	-	10	-	-	-
para-mentha-1,5-dièn-8-ol	1169	-	19	16	23	-	-	-	4	-	-
menthol	1170	1	-	-	-	-	-	1	-	-	-
terpinèn-4-ol	1178	11	98	26	92	308	4	6	9	-	-
thuj-3-èn-10-al	1180	1	-	-	-	-	-	t	-	-	-
iso-géranial	1182	-	-	-	-	-	-	30	2	-	-
cryptone	1184	4	-	7	8	7	-	t	-	-	-
cis-pinocarvéol	1186	-	-	-	-	-	-	-	2	-	-
a-terpinéol	1193	32	-	4	13	9	-	23	-	-	-
myrténol	1189	2	9	-	137	91	23	1	-	-	-
myrténal	1194	-	132	171	-	-	-	74	77	-	-
verbénone	1205	1	34	43	-	-	-	3	6	-	-
trans-pipéritol	1208	1	-	-	-	-	-	t	-	-	-
trans-carvéol	1215	-	9	11	-	-	-	3	3	-	-
cumin aldéhyde	1239	-	20	7	24	-	-	-	-	-	-
carvone	1243	-	-	-	11	-	-	-	-	-	-
cis-ascaridol	1244	-	-	-	-	-	-	-	-	25	13
cis-para-mentha-2,8-dièn-1-ol	1246	-	-	-	10	-	-	-	-	-	-
périlla aldéhyde	1279	-	9	3	7	-	-	-	-	-	-
a-terpinèn-7-al	1284	t	-	-	9	-	-	3	-	-	-
g-terpin-7-ol	1285	-	9	3	-	-	-	-	-	-	-
para-cymèn-7-ol	1288	1	-	4	16	-	-	1	-	-	-
carvacrol	1294	-	-	-	-	-	-	-	-	18	-
périlla alcohol	1301	-	-	8	11	-	-	-	-	-	-

Table 2: Continue

4-hydroxy-cryptone	1318	-	-	-	-	-	-	-	-	25	-
acétate de myrtényle	1327	-	42	-	-	-	-	-	-	-	-
verbanol acétate	1331	-	-	-	36	-	-	-	-	-	-
d-élémène	1332	2	-	-	-	-	2	-	-	-	-
acétate de verbényle	1335	1	-	-	-	-	-	1	-	-	-
a-copaène	1374	-	-	-	9	-	-	-	-	13	12
b-bourbonène	1381	-	-	-	-	-	-	-	-	9	4
b-cubébène	1386	-	-	-	-	-	-	-	-	22	-
b-élémène	1391	2	-	-	-	-	-	-	15	16	23
géranate d'éthyle	1395	-	-	-	-	-	-	-	-	-	5
cis-a-bergamotène	1409	-	-	-	-	-	-	-	-	18	-
a-cédrène	1415	-	-	-	-	-	-	-	-	-	-
b-caryophyllène	1418	1	-	-	-	-	7	-	7	53	88
b-copaène	1424	-	-	-	-	-	-	-	-	10	-
trans-a-bergamotène	1429	-	-	-	-	-	-	-	-	37	21
E-b-farnésène	1447	-	-	-	-	-	-	-	-	-	5
a-humulène	1454	1	-	-	-	-	-	-	3	12	31
b-santalène	1456	-	-	-	-	-	-	-	-	-	-
a-acoradiène	1462	-	-	-	-	-	-	-	-	-	-
g-curcumène	1474	-	-	-	-	-	-	-	-	-	-
ar-curcumène	1478	-	-	-	-	-	-	-	-	-	-
germacrène-D	1479	9	-	-	-	-	38	-	19	65	142
b-sélinène	1487	-	-	-	-	-	-	-	2	-	-
valencène	1490	-	-	-	-	-	-	-	-	14	-
allo-aromadendr-9-ène	1493	-	-	-	-	-	-	-	-	-	11
a-sélinène	1494	-	-	-	-	-	-	-	2	22	-
g-amorphène	1496	-	-	-	-	-	1	-	-	-	-
a-murolène	1498	-	-	-	-	-	-	-	-	-	6
germacrène-A	1505	1	-	-	-	-	-	-	4	-	6
b-bisabolène	1509	-	-	-	-	-	-	31	-	-	-
d-cadinène	1514	-	-	-	-	-	-	-	-	17	14
g-cadinène	1515	-	-	-	-	-	-	-	-	-	-
b-sesquiphellandrène	1520	-	-	-	-	-	-	-	-	-	-
E-g-bisabolène	1523	-	-	-	-	-	-	-	-	-	-
6,11-oxydo-acor-4-ène	1533	-	-	-	-	-	-	-	-	-	-
élémol	1547	2	-	-	-	-	42	51	119	-	-
germacrène-B	1553	1	-	-	-	-	-	-	2	-	4
E-nérolidol	1556	-	-	-	-	-	-	-	-	-	9
1-nor-bourbonène	1558	-	-	-	-	-	-	-	-	11	-
1,5-époxysalvial-4(14)-ène	1560	-	-	-	-	-	2	1	-	27	-
longipinanol	1566	-	-	-	-	-	-	-	3	-	-
germacrène-D-4-ol	1574	-	-	-	-	-	4	10	-	-	-
spathulénol	1575	-	-	-	-	-	-	-	5	-	-
oxyde de caryophyllène	1581	1	-	3	-	-	4	-	39	126	51
guaïol	1592	-	-	-	-	-	38	-	11	-	-
humulène-1,2-époxyde	1607	-	-	-	-	-	-	-	14	17	8
b-atlantol	1612	-	-	-	-	-	-	-	-	-	7
épi-cédrol	1623	-	-	-	-	-	-	-	-	-	-
a-acorénol	1624	4	-	-	-	-	14	-	-	-	-
γ-eudesmol	1629		-	-	-	-	-	-	11	-	-
érémoligénol	1630	-	-	-	-	-	10	-	-	-	-
isospathulénol	1632	-	-	5	28	29	-	-	-	-	-
épi-a-muurolol	1641	-	-	-	-	-	-	-	-	-	11
acétate de (Z)-3-hexénylphényle	1643	-	-	-	-	-	-	-	-	7	-
cubénol	1647	-	-	-	-	-	-	-	-	-	5
b-eudesmol	1651	1	-	-	-	-	-	-	-	-	-
a-cadinol	1653	-	-	-	-	-	-	-	-	22	25
a-eudesmol	1654	-	-	-	-	-	-	21	60	-	-
vélérianol	1656	-	-	-	-	-	106	77	-	-	-
néo-intermédéol	1657	-	-	-	-	-	-	-	-	12	9
bulnésol	1664	-	-	-	-	-	10	11	3	-	-
intermédéol	1667	-	-	-	-	-	-	-	-	65	13
b-bisabolol	1671	-	-	-	-	-	-	-	-	11	-
élémol acétate	1681	-	-	-	8	-	-	2	3	-	-
épi-a-bisabolol	1686	-	-	-	-	-	-	21	-	-	-
(Z)-trans-a-bergamotol	1689	-	-	-	-	-	-	-	-	13	-
E-apritone	1704	-	-	-	-	-	-	11	-	-	6
b-sinensal	1705	-	-	-	-	-	-	-	6	-	-

Table 2: Continue

(Z, Z)-farnésol	1710	-	-	-	-	-	-	1	-	-	-
longifolol	1723	-	-	-	-	-	-	15	7	-	-
acétate de (E,E)-farnésyle	1732	-	-	-	-	-	-	21	-	-	-
isophytol	1938	-	-	-	-	-	-	-	-	9	-
acide palmitique	1987	-	-	-	-	-	-	-	-	66	14
Total		993	917	996	964	971	988	965	966	888	958

t = trace (< 0,05%), A = Adangban, B = Banigbé, H= Hounsa, H_1 = Hêgo, H_2 = Hounsa, K = Kitigbo, M= Malé,
T = Tchaada, T_1 = Tchaada, Z = Zoungodo, (F_1, F_2, F_3, F_4, F_5) = fruit, (**F_6, F_7, F_8, F_9, F_{10}**) = Feuille

Conclusion:

The necessity of deepening the study of both annonaceae compounds denotes the value of medicinal aromatic plant species naturalized in Benin.

The results presented in the outcome of this study show that the essential oils extracted from the leaves and fruits of *Xylopia aethiopica* and *Annona senegalensis* are rich in hydrogenated and oxygenated monoterpenes. In the volatile extracts of *Annona senegalensis*, the compounds sesquiterpenic are more abundant.

The different compositions of aromatic vegetable extracts are not characterized by a particular compound and appear chemically very diverse. Later chemotypic investigations will concern a large number of samples collected on the explored sites and will allow to report the structural nature of the compounds of each variety of essential oil.

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