ACADEMICIA
An International Multidisciplinary Research Journal
(Double Blind Refereed & Peer Reviewed Journal)

DOI: 10.5958/2249-7137.2021.02255.2

QUALITY ANALYSIS OF ALKALOIDS OF SOME PLANTS GROWING IN THE REPUBLIC OF GUINEA

Rikhsivoy Ziyaev[1,2] ; Zulfiya Muxitova*; Saloxiddin Zakirov*; Mamadou Sadialiou Sidibe; Sory Fofana****

*Tashkent State Agrarian University,
Republic of UZBEKISTAN
Email id: ziyaev05 @ mail.ru

** Faculty of Science, University of Kindia,
Republic of Guinea, WEST AFRICA
Email id: concocory @ yaho. Fr; Rectorate @ univ-kindia. Org

ABSTRACT

The qualitative analysis of the alkaloid content of 51 samples of plant species belonging to 23 botanical families, collected in the Republic of Guinea was carried out. Among them, 5 families contain an abundance of alkaloids: they are Annonaceae, Lauraceae, Menispermaceae, Rhamnaceae and Rutaceae.

KEYWORDS: *Analyse qualitative, Alkaloids, Botanical families, Phytochemical interest, Republic of Guinea, University of Kindia.*

1. INTRODUCTION

The object of our work is the qualitative research of the alkaloid content of plants in the form of trees, shrubs and climbing plants of Guinea [1-4]. The plant samples studied (leaves, bark, stems, etc.) were collected at the Botanical Garden of Conakry and at the edge of the forest near the University of Kindia.

Alkaloid, a natural substance isolated from plants, of a basic nature, endowed with physiological activity and whose molecule generally contains one or more nitrogenous heterocycles.

Nearly 15000 alkaloids have been identified [7]. Many known alkaloids are used in medicine. For example, atropine from belladonna causes dilation of the pupil; poppy morphine suppresses pain; quinine is a remedy for malaria. Finally, it should be noted that nicotine is a powerful insecticide [2-4].

2. RESEARCH METHODOLOGY

We have qualitatively analyzed the alkaloid content of nearly 51 plant species belonging to 23 botanical families very widespread in the Kindia region [1]. . Among them, 5 families contain an abundance of alkaloids: they are *Annonaceae, Lauraceae, Menispermaceae, Rhamnaceae* and *Rutaceae* (Table 1).

The alkaloid composition was determined in the conventional way [5-6].

2-3 g of study plant (pulverized and dried leaves) were placed in a flask (50 ml capacity) and 10-15 ml of 5% sulfuric acid solution (H_2SO_4) was poured into it. The contents were left for 4-5 hours at room temperature. After filtration, a few drops of silicon-wolframic acid solution (H_2SiWO_6) were added to the filtrate. The formation of an abundant precipitate indicates the presence of a considerable quantity of alkaloids in the plant studied.

3. RESULTS

TABLE 1 : QUALITATIVE DETERMINATION OF ALKALOIDS IN PROPOSED PLANTS

№ Order	Family, genus and species	Plant organ	Content of alkaloids *
1. Annonaceae family			
1.	Annona muricata L.	Leaf Bark	+++ +++
2.	Annona senegalensis Pers.	Leaf Bark	+++ +++
3.	Cananga odorata (Lam.) Hook. F & Thoms.	Leaf Bark	+++ +++
4.	Xylopia aethiopica A. Rich.	Leaf Bark	+++ +++
5.	Uvaria chamae P. Beauv.	Leaf	+++
6.	Cleistopholis patens Benth.	Leaf	+++
2. Anacardiaceae family			
7.	Mangifera indica L.	Leaf	+
8.	Anacardium occidentale L.	Leaf	+
9.	Spondias monbine L.	Leaf	+
3. Family of Apocynaceae			
10.	Thevetia neriifolia Juss	Leaf	++
11.	Tabernanthe iboga H. Br..	Leaf	++
12.	Landolphia incerta (K. Shum.) Pichon.	Leaf	+++
13.	Landolphia dulcis (Sabine.) Pichon.	Leaf	++
14.	Landolphia senegalensis Korschy.	Leaf	++
15.	Voacanga africana Stapf.	Leaf	+++
16.	Rauvolfia vomitoria Afz.	Leaf	+++
4. Bromeliad family			
17.	Anonas comosus L.	Leaf	+
5. Caesalpiniaceae family			

18.	Dialium guineense Willd.	Leaf	-
19.	Guibourtia copallifera J. J. Benn.	Leaf	-
6. Clusiaceae family			
20.	Carcinia mangostana L.	Leaf	+
7. Family of Combretaceae			
21.	Combretum micrantum Shumach& Thonn.	Leaf	-
22.	Terminalia ivorensis A. Chev.	Leaf	-
8. Euphorbiaceae family			
23.	Hevea brasiliensis (Kunth) Mill. Arg.	Leaf	++
9. Caricaceae family			
24.	Carica papaya L.	Leaf	+++
10. Lauraceae family			
25.	Persea americana Mill.	Leaf	++
26.	Beibchmiea diamanvi L.	Leaf	+++
27.	Cinnamonum zeylanicum Ness.	Leaf	++
11. Meliaceae family			
28.	Entandrophragma angolense (Welw.) DC.	Leaf	-
29.	Carapa procera DC.	Leaf	-
12. Menispermaceae family			
30.	Dioscoreophyllum cumminsii (Stapf.) Diels.	Leaf	+++
30.	Dioscoreophyllum cumminsii (Stapf.) Diels.	Leaf	+++
31.	Cocculuis pendulus Diels.	Leaf	+++
32.	Triclisia patens Oliv.	Leaf	+++
13. Mimosaceae family			
33.	Acacia mangium Willd.	Leaf	++
14. Moraceae family			
34.	Ficus ingens Miq.	Leaf	++
35.	Ficus congensis Thunb.	Leaf	++
15. Moringaceae family			
36.	Moringa oleifera Lam.	Leaf	-
16. Family Oxalidaceae			
37.	Averrhoa carambola L.	Leaf	-
38.	Averrhoa bilimbi Willd.	Leaf	-
17. Rhamnaceae family			
39.	Ziziphys mauritiana Lam.	Leaf	+++
40.	Gouania longipetala Hemsl.	Leaf	++
41.	Ventilago africana Exell.	Leaf	++
18. Rhizophoraceae family			
42.	Anisophyllea laurina R. Br. Ex Sabine	Leaf	-
19. Rutaceae family			
43.	Zanthoxylum gilletii (De Wild.) Waterman	Leaf	+++
44.	Zanthoxylum leprieurii Guill.	Leaf	+++

45.	Zanthoxylum viride (A.Chev.) Waterman	Leaf	++
46.	Fagara zanthoxyloïdes Lam.	Leaf Bark	+++ +++
20. Sterculiaceae family			
47.	Cola cordifolia (Cav.) R. Br.	Leaf	-
48.	Cola reticulata A. Chev.	Leaf	-
21. Sapotaceae family			
49	Achras sapota L.	Leaf	-
22. Solanaceae family			
50	Solanum stramonium L.	Leaf	-
23. Verbenaceae family			
51.	Gmelina arborea L.	Leaf	-

* Content of alkaloids: + + + - in abundant quantity; + + - in small quantity;

+ - in insignificant quantity; (-) - absence of alkaloids

A **B** **C**

Photos of the few plants analyzed: A) Annona muricata L ; B) Xylopia aethiopica A. Rich; C) Carica papaya L.

4. CONCLUSION

In total, 51 species of plants belonging to 23 botanical families were qualitatively examined for the first time by us. Among them, 5 families contain an abundance of alkaloids. These are *Annonaceae, Menispermaceae, Lauraceae, Rutaceae and Rhamnaceae.*

It should be noted that in the future the study of the alkaloid content of the following species: *Annona muricata L., Annona senégalensis Pers., Cananga odorata (Lam.) Hook.* F., *Xylopia aethiopica A. Rich., Persea americana Mil., Dioscoreophyllum cumminsii (Stapt.) Diels., Cocculuis pendulus Diels. Ziziphus mauritiana Lam., Fagara zanthoxyloides Lam.,* Solanum stramonium L. would be of phytochemical interest, because these plant resources contain a considerable quantity of alkaloids belonging to several chemical structural types.

To mention gratefulness

The authors express their deep gratitude to the botanist engineer ***Ibrahima SYLLA*** (Botanical Garden of Conakry) and to the teacher ***Ousmane SOW*** (University of KINDIA) for the collection and identification of the plant material.

5. BIBLIOGRAPHY

1. 1. Lisowski S., *Flore (Angiospermes) de la République de Guinée, Première partie (texte).*, Jardin Botanique National de Belgique, 2009, 517 pp. (Scripta Botanica Belgica, vol. 41).
2. Pousset J. L. *Plantes Médicinales d'Afrique*. Comment les reconnaitre et les utiliser ?. Secum/Edisud, Paris. 2004, p.515
3. Boullard B. *Plantes médicinales du monde.* Croyances et Réalités. Estem Ed., Paris. 2001, p.42.
4. Sofowora A. *Plantes Médicinales et Médecine traditionnelle d'Afrique.* 1996, 1 Vol., 378p., Acad. Suisse des Sc. Nat. Et Ed. Karthala, co-édit., Berne/Paris., 1996, vol.1., 378p.
5. Ziyaev R., Ikramov K., Shumaeva L. M., Abdusamatov A., Introduc-tory alkaloid plants., Biological review of Uzbekistan, 1993, № 1, pp. 38-41.
6. Orekhov A. P., Chemistry of plant alkaloids from the USSR. , 1984, pp. 230-241, Ed. "Naouka", Moscow.
7. Yunusov S. Yu. Alcaloids 1994, 259p, Ed. "FAN", Tashkent

CONFERENCE PARTICIPANT QUESTIONNAIRE

	1 author	2- author	3- author	4- author	5- author
Last name, first name and patronymic	Ziyaev Rixsivoy	Mamadou Sadialiou SIDIBE	Zulfiya Muxitova	Sory FOFANA	Zokirov Saloxiddin
Academic title and Academic degree	Professor, Doctor of Chemical Sciences	Professeur	Associate Professor	Professeur	Professor, Candidate of Chemical Sciences
Workplace and position	Tashkent State University, Department of Physics and Chemistry, Professor	University of Kindia, Republic of Guinea, Professeur	Tashkent State University, Department of Physics and Chemistry, Associate Professor	University of Kindia, Republic of Guinea, Professeur	Professor of Tashkent State University, Department of Physics and Chemistry
Phone	712091690; 93-579-19-47	+224-664679326	94-601-59-99	+224-664294833	94-618-05-24
Email	ziyaev05@mail.ru	Mamanesidibe86@gmail.com	muxidovazulfiya@mail.ru	concocory @yaho.fr	zakirov@mail.ru
Article title	**QUALITY ANALYSIS OF ALKALOIDS OF SOME MEDICINAL PLANTS GROWING IN THE REPUBLIC OF GUINEA**				
Branch number and name	**9- Forestry, ornamental horticulture, landscaping and landscape design, medicinal plants**				