**East African Scholars Journal of Medical Sciences**
*Abbreviated Key Title: East African Scholars J Med Sci*
ISSN: 2617-4421 (Print) & ISSN: 2617-7188 (Online)
Published By East African Scholars Publisher, Kenya

Volume-3 | Issue-4 | Apr-2020 | DOI: 10.36349/EASMS.2020.v03i04.006

OPEN ACCESS

**Short Article**

# Toxicity and Physicochemical Studies of Anti-Microbia Mixture

Raphael Nyarkotey Obu, RND, PhD

Nyarkotey College of Holistic Medicine, Tema C7, Ghana

**Article History**
Received: 18.03.2020
Accepted: 12.04.2020
Published: 15.04.2020

**Journal homepage:**
https://www.easpublisher.com/easjms

**Quick Response Code**

**Abstract:** ***Aim*:**This study was conducted to assess the toxicity and physicochemical studies of an herbal product ***Antimicrobia*** formulated by one student studying Naturopathic and Holistic Medicine at Nyarkotey College of Holistic Medicine.***Method*:** Six (6) samples of Antimicrobia-Mixture were sent to the Kwame Nkrumah University of Science and Technology, KNUST, Ashanti region, Ghana to the Department of Herbal Medicine for analysis**.** ***Result*:** The Product, Antimicrobia Mixture have been established for quality control purposes and is safe in laboratory animals**.** ***Conclusion*:** The Product is safe for use in Ghana.
.

**Keywords:** Antimicrobial, Mixture, Health, Toxicity, Herbal, Product.



## METHODOLOGY & FINDINGS

**Table 1:** *Phytochemical And Physicochemical Studies*

| Anti-Microbia | | |
|---|---|---|
| Name | - | Anti-Microbia |
| Indication | - | Not stated |
| Active Ingredients | - | Not stated |
| Date Of Manufacture | - | Not stated |
| Date Of Expiry | - | Not stated |
| Batch Number | - | Not stated |
| Produced By | - | Redeemer Herbal Clinic And Research Centre Ltd. |
| **1.Organoleptic Properties** | | |
| Form | - | Liquid |
| Colour | - | Brown |
| Taste | - | Bitter |
| Odour | - | Characteristic |
| **2. Physicochemical Properties** | | |
| Ph | - | 5.26 |
| Dry weight per Ml | - | 0.1364g |
| Specific gravity/Ml | - | 1.0001 |
| **3. Phyochemical Properties** | | |
| Reducing sugars | - | Positive |
| Saponins | - | Positive |
| Alkaloids | - | Not detected |
| Flavonoids | - | Not detected |
| Phytosterols | - | Positive |

***Corresponding Author:** Raphael Nyarkotey Obu Email: oburalph30@yahoo.co.uk

| | | |
|---|---|---|
| Terpenoids | - | Positive |
| Tannins | - | Positive |

**4. Fourier-Transform Inrared Fingerprint Of Anti-Microbia**

**Sample preparation**: About 20mL of the herbal mixture was evaporated to dryness.

**Instrumentation**: A small amount of the dried mixture was placed on the sample area of the Bruker Fourier transform infrared (FT-IR) spectrometer and scanned between 4000-400cm-$^{1}$ with a resolving power of 4cm-$^{1}$ and a cumulative scanning limitation of 24times.

**Results**: Principal peaks appeared at wavenumbers 3325.59, 2919.31, 1607.84 and 1315.54cm-$^{1}$

**Comments**: Fourier-Transform Infrared (FT-IR) Fingerprint Anti-Microbia has been established for reference.

**REMARKS**
Characteristic physiochemical properties of Anti-Microbia have been established for quality control purposes.

**Table 2:**

| Animal Species | No. of animals/group | Route of administration | Doses administered | No. of death Recorded | Approx. lethal dose | Duration of study |
|---|---|---|---|---|---|---|
| Sprague-Dawley **Rats (n=6)** | 18 males, 3 groups | oral | 0, 5.88 and 11.76g/kg | No deaths recorded | Above 11.76 g/kg | 48h |

## REMARKS

A volume of 750ml of the mixture was evaporated to dryness to obtain a semi-solid mass (Yield=2.44%w/v) this was reconstituted by dissolving in distilled water (2g/ml). Rats were treated with 0, 5.88 and 11.76g/kg of the test product and observed over 48hours for signs of toxicity. None of the animals died during the study period and no signs of toxicity attributable to the test product treatment were observed. The lethal dose (LD50) of the product was estimated to be above 11.76g/kg (Table 1).

## CONCLUSION

The results indicate that the LD50_of the extract from Antimicrobia Mixture was greater than 11.76g/kg body weight in rats. Which can be regarded as of low toxicity in the rats?

## DISCUSSION

The product Antimicrobial Mixture contains important phytochemicals such as: saponins, Flavonoids, Tannins and Alkaloid is the only phytochemical absent in the product (**Tab 1**).

None of the laboratory rats died in the process (**Table 2**). Toxicity of herbal products Pharmacovigilance for complementary medicines is at the gestational stage (Barnes, J. 2003). Data are lacking in several areas relevant to safety. Standard pharmacovigilance tools have additional limitations when applied to investigating safety concerns with complementary medicines. It is therefore paramount for all herbal medicinal products to get tested and approved by the FDA in Ghana before commercialization.

## CONCLUSION

The Product, Antimicrobial has successfully passed the toxicological analysis conducted at the Kwame Nkrumah University of Science and Technology, KNUST, Ashanti Region, Ghana.

**Conflict of Interest:** None

**Acknowledgement**
The author thanks his staff, Mr. George Nartey and student, Philip Opey of Redeemer Herbal Clinic & Research Center for producing the product for the research.

## REFERENCES

1. Barnes, J. (2003). Quality, efficacy and safety of complementary medicines: fashions, facts and the future. Part II: Efficacy and safety. Br J Clin Pharmacol, 55(4), 331-40.