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PHYTOCHEMICAL ANALYSIS OF CRUDE ETHANOL LEAF EXTRACT OF MORINDA LUCIDA

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ABSTRACT

Plants have been used for ages in treatment of illness. Recently, a lot of attention is directed to medicinal plant. The phytochemical analysis of Morinda lucida was evaluated to ascertain some of the secondary metabolites that exhibit medicinal properties. The results of phytochemical screening of ethanol crude leaf extract of Morinda lucida revealed the presence of alkaloids, tannins and saponins. These secondary metabolites could be responsible for the observed medicinal properties of Morinda lucida by traditional herbalists.

Keywords: Phytochemical, Morinda lucida, Medicinal plant, Crude extract and Metabolites.

INTRODUCTION

Plant derived products have been used for medicinal purposes (WHO, 1987). At present, it is estimated that about 80% of the world population relies on botanical preparations as medicines to meet their health needs (Asuzu and Chineme, 1990). Herbs and spices are generally considered safe and effective for the treatment of ailments.

Medicinal plants are of great importance to health of individual and communities (Iwu, 1993). The medicinal values of this plant lie in some chemical substances that produce a definite physiological action on the human body (Murray, 1995). The most important of these chemical bioactive compounds are: flavonoids, alkaloids, tannins and phenolic compounds. *Morinda lucida* is employed for centuries in Anambra State, Nigeria by traditional practitioners in the treatment of ailments.

It is well documented that *Morinda Lucida* leaf extract has various therapeutic benefits with no known adverse effect among the user responses of various organ, especially liver and kidney in humans. *Morinda Lucida* originated from South East Asia and Australia. The species are now cultivated throughout the tropics. The aim of this research was to evaluate the phytochemical constituents of ethanol crude extract of *Morinda lucida*.

MATERIALS AND METHODS

COLLECTION OF PLANT SAMPLE

The leaves of *Morinda lucida* was collected from Umuoji, Anambra State. The Leaf was identified by a botanist Prof. P. O. Ugwozor of Department of Botany, Nnamdi Azikiwe University Awka as *Morinda Lucida*. *Morinda Lucida* leaves were dried in room temperature for about 14 days. Later, the dried leaves were pulverized into smaller particles and blended into powder.

ETHANOL EXTRACTION

Three grams (3g) of the blended *Morinda Lucida* leaves were soaked in 150ml of ethanol for about 24 h. The mixture was mixed thoroughly and then filtered through whatman filter paper. The filtrated was concentrated and preserved.

CHEMICALS, EQUIPMENT AND APPARATUS

Ethanol, Measuring cylinder, Pipettes (9ml, 5ml, 0.5 ml), Separating funnel, Test tubes and rack, Water bath, Whatman filter paper, Baker and Condenser.

PHYTOCHEMICAL TESTS**TEST FOR ALKALOIDS****MAYER'S TEST**

Method: 1ml of the extract was added to 1ml of mayer's reagent (Potassium mercuric iodide solution). Whitish or cream coloured precipitate indicates the presence of alkaloids.

HAGER'S TEST

Methods: 1ml of the extract was added to 3ml of hager's saturated aqueous solution of picric acid. Yellow colour precipitate indicates the presence of alkaloids.

WAGNER'S TEST

Method: 1ml of the extract was added to 2ml of wagner's reagent (iodine in potassium), Reddish brown colour precipitate indicates the presence of alkaloids.

TEST FOR FLAVONOIDS**SHINODA'S TEST**

Method: The extract was treated with sodium hydroxide and formation of yellow colour indicates the presence of flavonoids.

TEST FOR SAPONINS

Small quantity of the ethanol extract was separately added to 20ml of distilled water. This was mixed in a graduated cylinder for 15 minutes. Layers of foam indicate saponins.

TEST FOR TANNINS

1ml of the extract was added to ferric chloride solution, formation of a dark blue or greenish black colour product shows the presence of tannin.

RESULTS

RESULTS OF PHYTOCHEMICAL ANALYSIS

TEST	OBSERVATION	REMARK S
ALKALOIDS		
Mayer's Test	Creamy precipitate	++
Wagner's Test	Reddish brown precipitate	++
Hager's Test	Yellow precipitate	++
SAPONIN		
Frothing Test	Frothing	++
FLAVONOIDS		
Shinoda's Test	Orange or yellow color	-
TANNINS		
	Yellow coloration	+

KEYS

- The absence of detectable quantity
- + The presence of detectable quantity
- ++ Moderate concentration
- +++ High concentration

DISCUSSION AND CONCLUSION

DISCUSSION

Some traditional medicines are highly equipped with more qualities in therapeutical basis, majority of the people in developing countries have resorted to the use of medicinal plants as an alternative treatment. Herbal medicines are rich in the active ingredients and are safe with the body chemistry of man (Odutuga et al., 1973). Also the presence of the active ingredients lends credence to the claims of the use of plants for the treatment of diseases by trado-medical doctors (Obih, 1986). However, plants have forever been a catalyst for our healing. In order to halt the trend of increased emerging and resistant infectious disease, it will require a multipronged approach that includes the development of new drugs. Using plants as the inspiration for new drugs provides an infusion of novel compounds or substances for healing disease (Raji and Bolarinwa, 1977). Evaluating plants from the traditional African system of medicine provides us with clues as to how these plants can be used in the treatment of diseases.

Morinda lucida family of rubiaceae is an indigenous plant found in most African countries including some parts of Nigeria such as Eastern part like Anambra State. The leaves can also be used in the treatment of fever, malaria and jaundice. The phytochemical analysis of the plant revealed the presence of some phytochemicals that are of pharmacological benefits. This research show that Morinda lucida leaves contain saponins, alkaloids and tannins.

CONCLUSION

In conclusion Morinda lucida ethanol leaf extract was found to be moderately rich in alkaloids and tannins. These phytochemicals could be responsible for the observed pharmacological properties of the plant.

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