WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 14, Issue 4, 664-671. Research Article ISSN 2277–7105

THE ORIGIN OF HERBS AND ROOTS FOR MEDICINAL USAGES AMONG THE YORUBA PEOPLE OF SOUTH-WESTERN NIGERIA FOR NATIONAL DEVELOPMENT: A THEO-SCIENTIFIC PERSPECTIVE

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Article Received on
29 Dec. 2024,
Revised on 19 Jan. 2025,
Accepted on 09 Feb. 2025
DOI: 10.20959/wjpr20254-35484

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ABSTRACT

This research focused on tracing the origin and the proof of the efficacy of some selected herbs and roots [Aloe vera, **Anise (*Pimpinella anisum*), Cinnamon (*Cinnamomum verum*), Cumin (*Cuminum cyminum*), and Saffron (*Crocus sativus*)]** from the perspective of the ancient Jewish culture and that of the Yoruba traditional people of Nigeria. The research adopted many methodologies to unravel the realities of the existence of herbs and roots from the biblical perspective and scientific point of view as means of curbing the menace of illnesses and spread of dangerous diseases in Nigeria. The herbs, seeds and roots selected passed through phytochemical screening and antioxidant activities (Ferric Reducing Ability of Plasma (FRAP) and 1,1-diphenyl-2-picrylhydrazyl(DPPH) scavenging activity) in a well-equipped laboratory to ascertain their chemical contents in line with modern scientific demands. By this, their medicinal values were established both theologically and scientifically. The research, therefore, confirmed the medicinal values of the selected herbs and roots whose origin were traced back to the bible which is the book of origin of all things and the accredited manual for the understanding of the Jewish ancient culture. This research has firmly established that since God created them and instructed the use of these selected herbs and roots, their use is, automatically, not abominable to enhancing the flow of cordial relationship man was meant to benefit from God since creation. From our experimental findings, the selected herbs, seeds

and roots possess excellent phytochemical and antioxidant activities, hence their efficacy in curing diseases and ailments then and now.

KEYWORDS: Antioxidant; Phytochemical; Aloe vera; Anise; Cinnamon; Cumin; Saffron.

INTRODUCTION

The use of herbs and roots is as old as man. Since time immemorial people have tried to find medications to alleviate pain and cure different illnesses. In every period, every successive century from the development of humankind and advanced civilizations, the healing properties of certain medicinal plants were identified, noted, and conveyed to the successive generations. This is why there are ample evidences from various sources both written documents and preserved monuments that clearly revealed that original plants for medicines are confirmed by Bible writers. Therefore, the Bible is still considered the oldest document or evidence of medicinal plants for healing in the history of humanity. As noted by Kelly,[1] the use of medicinal plants for healing and preparation of drugs which contained over 250 various plants was found on Sumerian clay slab from Nagpur as long as 5000 years ago. Bottcher[2] and Wiart[3] also observed that the Chinese book on roots and grasses “Pen T Sao” written by Emperor Shen Nung was compiled about 2500BC and it contained the use of 360 medicinal plants and roots for healing of various diseases and ailments.

The benefits of herbs and roots to one society were passed on to another, which upgraded the old properties, discovered new ones, till present days. The continuous and perpetual people's interest in medicinal plants has brought about today's modern and sophisticated fashion of their processing and usage.

In the findings of Glesinger[4] and Tucakov,[5] the Ebers Papyrus, written about 1550 BC was a compilation of 800 prescriptions where there are 700 different plants for drugs or therapeutic purposes such as pomegranate, castor oil plant, aloe, senna, garlic, onion, fig tree, willow, and so on. According to the data available in the Bible and the holy Jewish book; the Talmud, aromatic plants were utilized such as myrtle and incense with accompanying various ritualistic observances.[6]

From the beginning of their history until modern times Jews have exercised a tremendous influence on the development of medical science. They have always been solicitous in their care for the sick and held the medical profession in great esteem. In ancient times medicine

and religion were closely connected. The priests were the custodians of public health. The dispute as to the propriety of human interference in sickness – regarded as divine retribution – ceased to trouble the Jews, because they came to regard the physician as the instrument through whom God could affect the cure. Jewish physicians therefore considered their vocation as spiritually endowed and not merely an ordinary profession. By the same token, great demands were made of them, and the ethical standards have always been very high.

The **aloe vera** plant has been used for thousands of years. In ancient times, it was used to embalm the dead, as well as for perfume. It also has a lengthy history of use topically for skin complaints (including wounds, irritations and burns) and internally for constipation. Today, aloe is commonly used to treat burns (including sunburns), heal rashes and moisturize the skin. Research has also shown that aloe may help to lower blood sugar in type 2 diabetics and decrease the effects of liver damage caused by alcohol.[7]

All parts of the **anise** plant were used during Biblical times. The seeds, leaves and stem were used to cool high temperatures, as well as for other medicinal purposes. Today, anise can be used to help with digestion and can be used as an anti-flatulence agent. It's also used with some success for breast-feeding support and parasites. As an antispasmodic, anise can be helpful for coughs, bronchitis and COPD. It is commonly taken by crushing the seeds into a tea.[7]

The bark of **cinnamon**, where the oil comes from, was traditionally collected for anointing oil, as well as perfume. Today, cinnamon is used to help lower blood glucose levels. Due to its antifungal properties, it's also employed in the natural treatment of yeast infections. It can also help to calm an upset stomach by relieving gas.[7]

The ancient Isrealites took **cumin** seeds, dried them and used them to flavour their food. Today, research has shown that cumin seeds contain a substance called cuminaldehyde that may be useful in fighting diabetes. Black cumin contains an anticancer phytochemical known as thymoquinone and thymoquinone may be considered as a future drug in cancer treatment.[7]

Because of its distinct yellow colour, **saffron** was used not only for flavouring but to make ancient dyes as well. Ancient peoples used saffron to treat stomach upsets, bubonic plague and smallpox. Today, recent studies have indicated possible health benefits including cancer-

inhibiting properties (specifically for breast cancer), antidepressant effects and promoting a feeling of fullness for mildly overweight individuals.[7]

The main source of information on ancient Hebrew medicine is the Bible, which refers to medicine as it pertains to religious or civil laws or when important characters are involved.

MATERIALS AND METHODS

Collection of plant material

Fresh matured leaves, roots and seeds of the selected plants were collected from various plantations in South West Nigeria. The plant parts were identified and authenticated by a Botanist in the Department of Biology, Adeyemi Federal University of Education, Ondo, by comparing with voucher specimens deposited at the Herbarium of the Department of Crop Protection and Pest Management, Federal University of Technology, Akure, Nigeria.[8] The plant parts were washed under running tap water, air dried and then homogenized to fine powder and stored in airtight bottles.

Extraction of plant material

Solvent Extraction

The solvent and chemicals used for this work were of analytical grade. Thoroughly washed plant parts were dried in shade for five days and then powdered with the help of blender. The powdered plant parts were extracted successively with ethanol in Soxhlet extractor for 48hr. The residue was evaporated at 45°C to dryness.

The concentrated extract was thereafter stored in a desiccator.

Reconstitution of Extract for Analysis

The extract (0.02g) was weighed and transferred into a universal bottle. It was dissolved with 2 ml of dimethyl sulphoxide and made up to 20 ml with distilled water. It was kept in the refrigerator until further use.

Phytochemical Analyses

The hexane, ethyl acetate, chloroform, butanol and methanol crude extracts (1 g) is completely dissolved in 100 mL of its own mother solvents. The obtained stock solution is used for phytochemical screening following the methodology of Harborne[9] and Kokate.[10]

Test for alkaloids

One gram powder samples of the extracts is taken in a conical flask and added ammonia solution (3 mL). It is allowed to stand for few minutes to evaluated free alkaloids. Chloroform (10 mL) is added to the conical flask shaken by hand and then filtered. The chloroform is evaporated from the crude extract by water bath and added Mayer's reagent (3 mL). A cream colour precipitation is obtained immediately that shows\ the presence of alkaloids.

Test for flavonoids

The stock solution (1 mL) was taken in a test tube and added few drop of dilute NaOH solution. An intense yellow colour was appeared in the test tube. It became colourless when on addition of a few drop of dilute acid that indicated the presence of flavonoids.

Test for saponins

The stock solution (1 mL) was taken in a test tube and diluted with 20 mL of distilled water. It was shaken by hand for 15 min. A foam layer was obtained on the top of the test tube. This foam layer indicated the presence of saponins.

Test for steroids

The crude plant extracts (1 mg) was taken in a test tube and dissolved with chloroform (10 mL), then added equal volume of concentrated sulphuric acid to the test tube by the side of the test tube. The upper layer in the test tube turns red and sulphuric acid layer showed yellow with green fluorescence. It showed the presence of steroids.

Test for tannins

The stock solution (3 mL) was taken in a test tube and diluted with chloroform and added acetic anhydride (1 mL). Finally, sulphuric acid (1 mL) was added carefully by the side of test tube to the solution. A green colour was formed which showed the presence of tannins.

Test for triterpenoids

The dry crude plant extract (5 mg) was dissolved in chloroform (2 mL) and then acetic anhydride (1 mL) was added to it. Concentrated sulphuric acid (1 mL) was added to the solution. Formation of reddish violet colour shows the presence of triterpenoids.

ANTIOXIDANT PROPERTY

The Ferric Reducing Antioxidant property

Ferric Reducing Ability of Plasma (FRAP) of the extract was done using the method of Benzie and strain.[11] The FRAP working reagent was freshly prepared by mixing solutions of Acetate buffer (pH 3.6), TPTZ solution, and ferric chloride in ratio 10:1:1 and warmed at 37 °C before use. Samples (0.2 ml) were mixed with 2.80 ml of the FRAP reagent and the mixtures were kept in the dark for 30 min at room temperature. The absorbance was read at 593nm and FRAP was evaluated from ferrous sulphate standard curve and expressed as (mg Fe^{2+}E/100g). This procedure was carried out in triplicate.

1, 1-Diphenyl-2-picrylhydrazyl (DPPH) Scavenging Activity

The 1,1-diphenyl-2-picrylhydrazyl scavenging activity of the extract was done using the Gyamfi method with slight modification.[12] Appropriate dilutions of 1.0 ml (0.1-0.4 mg/ml) sample were added to 4 ml of DPPH solution (40 mg/l) prepared in methanol. The samples were mixed thoroughly and left in the dark for 30 minutes. The absorbance was read at 520 nm. The inhibition percentage was calculated as;

Inhibition percentage of DPPH = {(Abs control- Abs Sample)/ (Abs Control)} × 100

DPPH solution without sample served as control. This procedure was carried out in triplicate.

RESULTS AND DISCUSSION

Table 1: Phytochemical Screening.

Plants	Alkaloids	Flavonoids	Saponins	Steroids	Tannins	Triterpenoids
Aloe vera	+	+	+	+	+	+
Anise (Pimpinella anisum)	*	*	*	*	*	*
Cinnamon (Cinnamomum verum)	*	*	–	–	+	+
Cumin (Cuminum cyminum)	*	*	–	–	*	*
Saffron (Crocus sativus)	*	*	–	–	*	*

+ represents present; – represents absent

Antioxidant activity

Table 2: Shows the results of ferric reducing antioxidant potential (FRAP).

Extract	Concentration (µMFe^{2+}/g)
Aloes	374.1±0.09
Anise	214.65±0.45
Cinnamon	777.8±2.08
Cumin	490.61±1.071
Saffron	1081.94±0.98

Values represent Mean ± Standard deviation of three replicates.

FRAP assay measures the reducing potential of an antioxidant reacting with a ferric tripyridyltriazine (Fe^{3+}-TPTZ) complex and producing a colored ferrous tripyridyltriazine (Fe^{2+}-TPTZ). The free radical chain breaking takes place through donating a hydrogen atom.[1] FRAP was expressed as mg Fe^{2+}E/100g.

Table 3: DPPH radical scavenging activity (% inhibition) of methanol extracts.

Extract (mg/ml)	**Concentration activity**	**% Inhibition of DPPH**
Aloes	0.1	51.78
Anise	0.1	41.30
Cinnamon	0.1	46.85
Cumin	**0.1**	**35.35**
Saffron	0.1	81.76

Each value represents the mean ± standard deviation of three experiments.

DPPH

Scavenging activity of DPPH is based on one-electron reduction which represents the free radical reducing activity of antioxidants. The result in Table 3 shows the percentage inhibition of DPPH radical by the methanol extracts of the plants. The results show that the methanol extract of Saffron has the highest inhibition activity of 81.76% while Cumin has the lowest inhibition activity of 35.35%.

All the herbs investigated exhibited antioxidant activity by scavenging ROS, inhibiting lipid peroxidation, and modulating antioxidant enzymes. This further authenticated the proofs of their medicinal usages in ancient times and now.

CONCLUSION

The rich presence of bioactive compounds, such as flavonoid and polyphenols, in these herbs and roots contributes to their powerful antioxidant properties, which help combat oxidative

stress and protect cells from damage. These findings authenticated the proofs of their medicinal usages in ancient times and now.

Further research and clinical studies are essential to unlock the full potential of this botanical resource for promoting health and well-being.

RECOMMENDATION

The data obtained from this research could serve as leverage for further research on the possible use of these herbs and roots as natural sources of antioxidant therapy in the management of diseases caused by oxidative stress.

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