Educational Administration: Theory and Practice
2024, 30(6), 3521-3531
ISSN: 2148-2403
https://kuey.net/

Research Article

Pharmacognostic, Ethnopharmacological, Phytochemical Sceening Of *Cinnamon Verum* and *Ocimum Tenuiflorum Leaf* Extract for Its Antiseptic Activity

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Citation: Farman, et al (2024), Pharmacognostic, Ethnopharmacological, Phytochemical Sceening Of *Cinnamon Verum* and *Ocimum Tenuiflorum Leaf* Extract for Its Antiseptic Activity *Educational Administration: Theory and Practice, 30*(6), 3521-3531, Doi: 10.53555/kuey.v30i6.5601

ARTICLE INFO

ABSTRACT

The study encompasses multiple stages, starting with the meticulous the collection of plant and the preparation of plant materials. The extraction of the *Cinnamon verum* and O*cimum tenuiflorum* leaf extract is performed using established techniques to optimize the yield of bioactive compounds. The extraction process may involve *Cinnamon verum* and O*cimum tenuiflorum* plant leaf extracts to harness potential synergistic effects, thereby enhancing the extract's overall efficacy. Phytochemical analysis plays a pivotal role in this study, involving both qualitative and quantitative assessments. Various classes of phytochemicals, including eugenol, alkaloids, flavonoids, terpenoids, and polyphenols, are screened to identify and quantify their presence. The ultimate goal of this research is to assess the in vivo antiseptic activity of the *Cinnamon verum* and O*cimum tenuiflorum* leaf extract, addressing its ability to inhibit or eliminate microorganisms within living organisms. In vitro studies, DNA lab testing, and field studies are undertaken to evaluate the extract's effectiveness in real-life biological systems, including its safety and potential side effects in clinical settings. The findings from this research hold the promise of a novel and potent antiseptic solution, contributing to the ongoing efforts to combat infectious diseases and enhance public health.

Keyword- Polyherbal extract, Antiseptic activity, Pharmacological evaluation, Phytochemical analysis.

1. INTRODUCTION

Antiseptics are vital pharmacological agents used in healthcare to disinfect tissues, prevent microbial growth, and reduce infection risks in wounds and surgical sites. They disrupt microorganisms' cell membranes, hindering their growth through various mechanisms. Studies emphasize their crucial role in patient safety during surgeries, underscoring the importance of effective antiseptic measures. Common types include iodine compounds, chlorhexidine, alcohol solutions, hydrogen peroxide, and silver-based agents, each with unique properties. Antiseptics are indispensable for infection prevention and optimizing patient outcomes in clinical practice. Studies, such as the one conducted by Anderson et al. (2019) and published in the Journal of Antimicrobial Chemotherapy, highlight the significant role of antiseptics in maintaining patient safety during surgical procedures.[1] Antiseptics are extensively utilized in wound care to clean and disinfect wounds, mitigating bacterial contamination and expediting the healing process. A systematic review and meta-

analysis by Leaper et al. (2015) published in the International Wound Journal demonstrated the efficacy of antiseptics in reducing wound infections and fostering healing. This research underscores the importance of antiseptics in pharmacological management, particularly in treating acute and chronic wounds.[2] Antiseptics are crucial for hand hygiene in healthcare settings and during the COVID-19 pandemic. Proper hand hygiene with these agents is vital in preventing infectious disease transmission. Kampf et al. (2020) emphasized this importance in the Journal of Hospital Infection, highlighting antiseptics' role in infection control measures.[3]

Mechanism of Action: Certainly, here's a more concise explanation of the mechanisms of action of antiseptics:

Protein Denaturation: Antiseptics like alcohol, chlorhexidine, and povidone-iodine disrupt microbial cell membranes or walls by denaturing proteins, leading to cell death.

Cell Membrane Disruption: Surfactant antiseptics such as benzalkonium chloride and chlorhexidine disruption the microbial cells membranes, causing the cells leakage and the cells death.

Oxidation: Antiseptics like hydrogen peroxide and iodine-based compounds generate reactive oxygen species, which damage microbial DNA, proteins, and lipids, ultimately killing microorganisms.

Chelation: Chelating agents like EDTA disrupt microbial processes by sequestering essential metal ions required for growth and metabolism. [4]

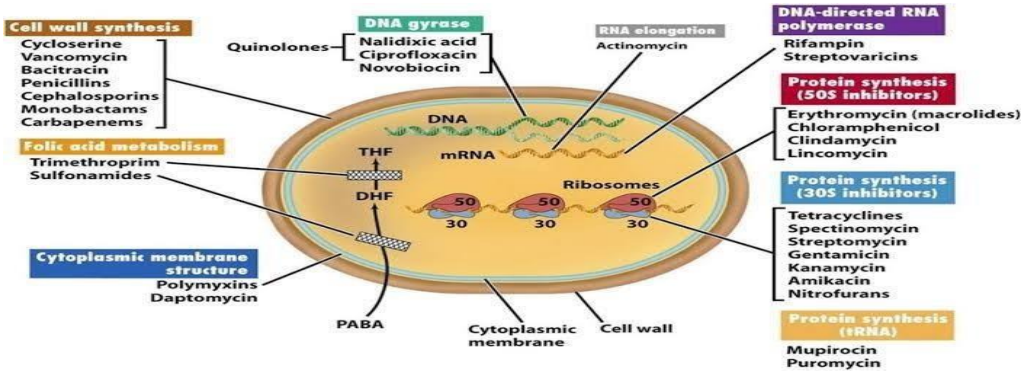

Fig 1 Mechanism of action

BACTERIA [5,6]

E. Coli (Escherichia Coli): - Belongs to gram (-)ve bacteria category. It is discovered by German Physician Thedore Escherich in 1885. Normal flora of mouth and Intestine. Grow well on nonselective media forming smooth colorless colonies 2-3mm (about 0.12 in) in diameter in 18-hour nutrient agar temp. 15-450C. E. coli causing diarrheal disease are divisible into 5 groups. They produce diarrhea with different pathogenic mechanisms. Enteropathogenic, Enterotoxigenic, Enterohemorrhagic, Introgressive. E. coli forms a part of the normal man intestinal flora and the animals.

Enterotoxigenic E. coli: The pathogenic variation or pathovar of E. coli known as enterotoxigenic E. coli is characterized by the synthesis of diarrheagenic heat-labile (LT) and heat-stable enterotoxins. Nearly fifty years after these bacteria were first shown to be the cause of watery diarrhea that resembled cholera, they continue to pose a serious threat to global health, especially to young children living in underdeveloped nations. Here, it's believed that every year, more than a billion children under five get diarrheal disease, with hundreds of millions of instances of diarrhea being attributed to ETEC alone.

Enteropathogenic E. coli: The five types of enterotoxigenic, enteroinvasive, enterohemorrhagic (EHEC), enteroaggregative, and enteropathogenic (EPEC) strains that are currently known to cause diarrhea in humans can be classified based on pathogenic mechanisms. Furthermore, although strains displaying widespread adherence to tissue culture cells have been suggested to be diarrheagenic, they have not yet been reliably demonstrated to be pathogenic in epidemiologic or challenge studies, in contrast to strains belonging to the other groups. [5,6]

PLANT PROFILE

***Ocimum Tenuiflorum L.*, (TULSI):** Holy basil, or Tulsi, is actually a pretty amazing plant that belongs to the Lamiaceae family, specifically the tribe Ocimeae. Its scientific name is *Ocimum tenuiflorum* L. The upright, heavily branching subshrub that is holy basil usually grows to a height of 30 to 60 cm. It has hairy

stems and simple, opposite, green leaves with a potent smell. The ovate leaves, which have petioles, can reach a maximum length of 5 cm (1.97 in) and frequently have slightly serrated edges.Additionally, preclinical research indicates that Tulsi and a few of its phytochemicals, such as eugenol, By enhancing antioxidant activity and changing genes, rosmarinus acid, apigenin, myrtenol, luteolin, β-sitosterol, and carnenic acid protected chemically caused skin, liver, oral, and lung malignancies. It is frequently seen in areas like Indonesia, Thailand, Sri Lanka, and India. Numerous advantageous characteristics of this plant, such as its antidiabetic, antibacterial, anticancer, adaptogenic, and radioprotective qualities, have been emphasized by recent biochemical and physiological investigations. [7,8,9,10]

***Cinnamon Verum* L., (Dalchini):** *Cinnamomum verum,* a member of the Lauraceae family, is cultivated in several Asian countries, with a notable presence in Southern India and Sri Lanka. Cinnamon, a traditional folk herb used historically in Korea, China, and Russia, is produced by this species. About 4% of essential oil is found in cinnamon bark, and it is mostly made up of cinnamaldehyde (60–75%), cinnamyl acetate (1–5%), eugenol (1–10%), β-caryophyllene (1- 4%), linalool (1-3%), and 1,8-cineole (1-2%). It also contains sugars like mannitol, pentacyclic diterpenes like cinnzeylanol and its acetyl derivative, cinnzeylanine, phenolic acids, and oligopolymeric procyanidins. Numerous pharmacological traits are displayed by cinnamon, such as blood glucose management, anti-inflammatory, anti-microbial, cardiovascular support, cognitive enhancement, and anticarcinogenic qualities. [11,12,13]

MATERIALS AND METHODS:

Plant Material

The plant *Ocimum tenuiflorum* and *Cinnamon verum* leaves was collected from local market of Dehradun, Uttarakhand (India) in January 2024. The plant was identified by the department of botany and microbiology in gurukul kangri university Dehradun (Uttarakhand).

Plant Extraction of *Ocimum tenuiflorum* for Methanolic Eextraction

The leaves of *Ocimum tenuiflorum* were cleaned two or three times using sterile distilled water and running water. The experiment was conducted independently for solvents. Dried *Ocimum tenuiflorum* leaf powder (50g) was added to the thimble of the Soxhlet apparatus together with 500 ml of methanol for the extraction operation. The extraction process went on until the thimble contained either water or a clear solvent. A rotary evaporator was used to concentrate the extract. The extract was then allowed to dry in a bath of distilled water until a dark green residue was formed. The extracts were then dissolved in their respective solvent. Until the experiments, these extracts are stored at room temperature in tiny, sterile opac vials.

Plant Extraction of *Ocimum tenuiflorum* for Aqueous Extraction

The leaves of *Ocimum tenuiflorum* were cleaned two or three times using sterile distilled water and running water. The experiment was conducted independently for solvents. Dried *Ocimum tenuiflorum* leaf powder (50g) was added to the thimble of the Soxhlet apparatus together with 500 ml of water for the extraction operation. The extraction process went on until the thimble contained either water or a clear solvent. A rotary evaporator was used to concentrate the extract. The extract was then allowed to dry in a bath of distilled water until a dark green residue was formed. The extracts were then dissolved in their respective solvent. Until the experiments, these extracts are stored at room temperature in tiny, sterile opac vials.

Plant Extraction of *Cinnamon verum* for Methanolic Extraction

The leaves of *Cinnamon verum* were cleaned two or three times using sterile distilled water and running water. The experiment was conducted independently for solvents. Dried *Cinnamon verum* leaf powder (50g) was added to the thimble of the Soxhlet apparatus together with 500 ml of methanol for the extraction operation. The extraction process went on until the thimble contained either water or a clear solvent. A rotary evaporator was used to concentrate the extract. The extract was then allowed to dry in a bath of distilled water until a dark green residue was formed. The extracts were then dissolved in their respective solvent. Until the experiments, these extracts are stored at room temperature in tiny, sterile opac vials.

Plant Extraction of *Cinnamon verum* for Aqueous Extraction

The leaves of *Cinnamon verum* were cleaned two or three times using sterile distilled water and running water. The experiment was conducted independently for solvents. Dried *Cinnamon verum* leaf powder (50g) was added to the thimble of the Soxhlet apparatus together with 500 ml of water for the extraction operation. The extraction process went on until the thimble contained either water or a clear solvent. A rotary evaporator was used to concentrate the extract. The extract was then allowed to dry in a bath of distilled water until a dark green residue was formed. The extracts were then dissolved in their respective solvent. Until the experiments, these extracts are stored at room temperature in tiny, sterile opac vials.

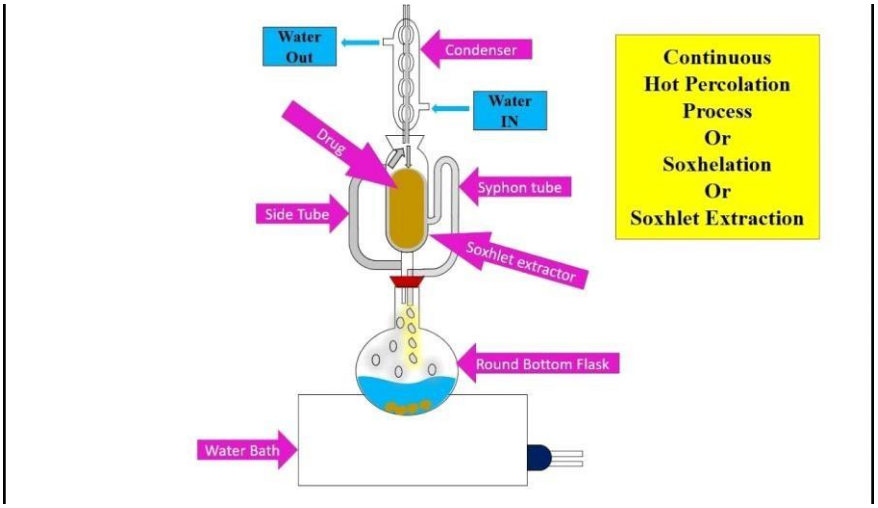

Fig 2 Soxhlet extraction

Phytochemical Screening: [15,16]
An aqueous extract was used in chemical assays to identify different constituents using the conventional procedures of Sofowara, Trease, Evaans, and Harbone

Tests for Tannins:

- Take around two milliliters of the watery extract (which may contain tannins).
- Stir in 2 milliliters of distilled water.
- To the mixture, add a few drops of ferric chloride ($FeCl_3$) solution.
- Watch the response. There are tannins present when a green precipitate forms.

Tests for Flavonoids:

- Take 1 milliliter of the watery extract that can contain flavonoids.
- To the extract, add 1 milliliter of a lead acetate solution (10%).
- Watch the response. The presence of flavonoids is shown by the production of a yellow precipitate.

Test for terpenoids:
Take two milliliters of the organic extract that you think has terpenoids in it.
Mix it with two milliliters of chloroform, then let the chloroform evaporate until it is completely dry, retaining the organic constituents.
To the dry residue, add 2 cc of sulfuric acid that has been concentrated. For roughly two minutes, heat the mixture.

Watch the response. The appearance of a grayish hue signifies the existence of terpenoids

Test for steroids:
Liebermann-Burchard test
Test: Add 2 ml (about 0.07 oz) of concentrated sulfuric acid after dissolving 2 ml (about 0.07 oz) of organic extract in 2 ml (about 0.07 oz) of chloroform.

Result: The presence of steroids is shown by the red hue in the lower chloroform layer.

Salkowski test:
Add a solution of sulfuric and acetic acids after dissolving 2 ml (0.07 oz) of organic extract in 2 ml (0.07 oz) of chloroform.

Result: Steroid presence is indicated by the development of a greenish tint.

Test for Eugenol
To create a solution, the sample that is thought to contain eugenol is either diluted or extracted using the proper solvent.

Ferric Chloride Addition: The sample solution is mixed with a few drops of ferric chloride ($FeCl_3$) solution.

Observation: The sample contains eugenol because of the development of a violet tint. Eugenol and ferric ions combine to form a complex, which is the cause of this color shift.

Bacteria culture

The two strains of E. coli bacteria that cause food poisoning illnesses—enteropathogenic and enterotoxigenic were used to test the antibacterial effectiveness of each plant extract. The bacterium Escherichia coli is gram-negative. The DNA Lab's (Centre for Research and Innovation Studies) culture collection in Jhajra, Dehradun, Uttarakhand, gave the bacterial strains.

Take the following actions to get the bacterial culture density needed for sensitivity testing: Put each strain of bacteria onto a Nutrient agar plate. To encourage bacterial growth, incubate the agar plates at 37°C for 18 to 24 hours. Take one colony out of each agar plate. Place the chosen colony in 5 milliliters of Nutrient Broth to culture. For sensitivity testing, incubate the Nutrient Broth cultures at 37°C for 4 hours to promote bacterial growth and the achievement of the target density.

Antiseptic activity test Disc Diffusion Method:

disc diffusion method, used frequently in microbiology to assess a bacteria's resistance to antibiotics or other antimicrobial agents. This technique is essential for determining how well different substances block the growth of germs.

The key steps involved include:

Preparation of the Agar Plate: The Agar medium is prepared and poured into petri dishes. The agar solidifies to provide a surface for bacterial growth.

Inoculation of Bacteria: Using a sterilized swab, enteropathogenic and enterotoxigenic bacteria are equally distributed across the agar surface. This stage guarantees that the bacteria are distributed evenly.

Placement of Antibiotic Discs: Filter paper discs impregnated with specific antiseptic or compounds to be tested are placed onto the agar surface. These discs release the antimicrobial agents, which diffuse into the agar.

Incubation: After that, the agar plates are incubated for the necessary amount of time and at the right temperature to promote bacterial growth.

Observation of Zones of Inhibition: After incubation, if the antiseptic or compound is effective against the bacteria, a clear zone devoid of bacterial growth will be visible around the disc. This area is termed the "zone of inhibition."

Measurement and Interpretation: A ruler or pair of calipers is used to measure the diameter of the zone of inhibition. Greater bacterial susceptibility to the antiseptic is indicated by larger zones, which suggest that the drug has adequately disseminated to impede bacterial development. Organizations and the European Committee on Antimicrobial Susceptibility Testing provide standardized tables or standards that are used to interpret zone sizes.

Result outcomes: The outcomes are documented, revealing the extent of the inhibition zone for every antiseptic examined in relation to the strain of bacteria. The minimum inhibitory concentration of the antibiotic that corresponds with the greater zones of bacteria. The inhibition resulting from the test is contrasted with that resulting from a reference substance at a known concentration. Using this method, a specific antiseptic for a certain infection can be identified.

Minimum inhibitory concentrations (MICs):

Using the microtiter plate dilution method, the MICs of the two plants that had the strongest antibacterial activity against certain poultry diseases were determined (refer to figure). 96-well microtitre plates that were sterile were used for this test. A 1:2 dilution was made for the active extract assessment. In the end, the concentration was 100%, 80%, 60%, 40%, and 20%. U- shaped wells in 96-well microtiter plates were used for the microdilution. The cultures were diluted in water, with the density adjusted to 0.5 McFarland turbidity, to put it briefly. The bacterial colony in the last inoculum. The plant extract stock solution was suspended, and the plant extracts was added to each well by a two-fold serial dilution process after the wells were filled with methanol. To get the 0.5 McFarland standard bacterial suspension was added to each well during the inoculation process. After covering, the plates were sealed in plastic bags and incubated for twenty-four hours at 37°C. The *Ocimum tenuiflorum* and *Cinnamon verum* plant extracts' minimum inhibitory concentration (MIC) in this investigation was either determined.

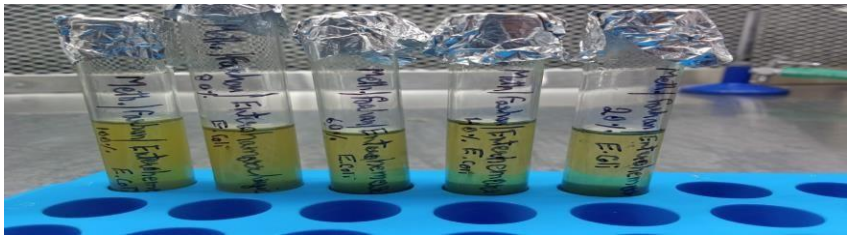

Fig 3 MIC of *Cinnamon verum* methanolic extraction on ETEC

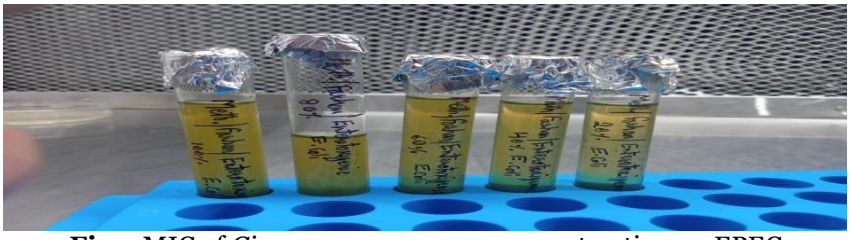

Fig 4 MIC of *Cinnamon verum* aqueous extraction on EPEC

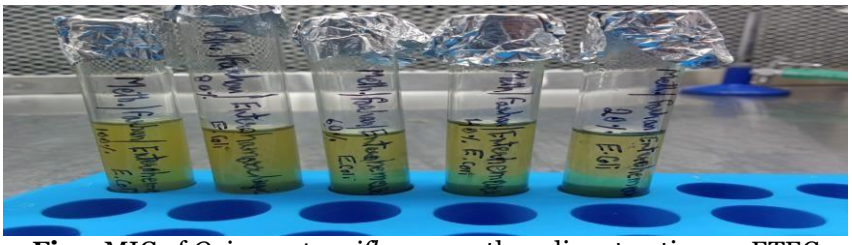

Fig 5 MIC of *Ocimum tenuiflorum* methanolic extraction on ETEC

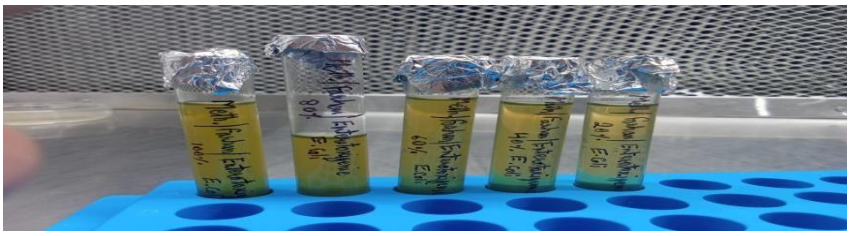

Fig 6 MIC of *Ocimum tenuiflorum* aqueous extraction on EPEC

Results and Discussion

Ocimum tenuflorum

The results confirm the presence of constituents which are known to exhibit medicinal as well as physiological activities. The phytochemical characteristics of the leaf extract of *ocimum tenuflorum* investigated are summarized in table 1. The results reveal the presence of medicinally active constituents like Euganol, tannins, alkaloid, terpenoids, steroids and flavnois, Phlobatannins, glycosides in the leaves of *ocimum tenuflorum* and. While saponins were absent in these plants. The eugenol and alkaloids contained in plants are used in medicine as antiseptics agents.

The findings validate the existence of components that are recognized to possess both physiological and therapeutic properties. Table - summarizes the phytochemical properties of the *ocimum tenuflorum* leaf extract under investigation. The findings indicate that the leaves of *Ocimum tenuflorum* contain compounds that are medicinally active, including euganol, tannins, alkaloids, terpenoids, steroids, flavonoids, phenol-betaine, and glycosides. whereas these plants lacked saponins. In medicine, eugenol and alkaloids found in plants are utilized as antiseptics.

The bioactive components that may be accountable for the plants under study's leaves' effectiveness are phytochemical substances.

It has also been established that several of these substances possess antibacterial properties.

Therefore, it is possible to deduce that plant extracts could be a source for the industrial production of medications that are helpful in treating microbial infections with chemotherapy.

Fig 7 Ocimum tenuflorum

Table 2: Following 50 grams of dried cinnamon verum leaves' Soxhlet extraction and evaporation in methanol and water, the residue yield was as follows

Tulsi leav**es** extract	Yield amount (%) W/W
Aqueous	1.2%
Methanol	3.1%

Table 1: Phytochemicals constitute of the leaf extract of tulasi plant:

Chemical constituent	**Methanol extract**	**Water extract**
Eugenol	+	+
Tannins	+	-
Flavonoids	+	+
Saponins	-	-
Terpeniods	+	-
Steroids	+	+

Cinnamon verum

The results confirm the presence of constituents which are known to exhibit medicinal as well as physiological activities.

The phytochemical characteristics of the leaf extract of *Cinnamon verum* investigated are summarized in table 3. The results reveal the presence of medicinally active constituents like Euganol, tannins, alkaloid, terpenoids, steroids and flavnois, phlobatannins, glycosides in the leaves of *Cinnamon verum*. While saponins were absent inthese plants. The eugenol and alkaloids contained in plants are used in medicine as antiseptics agents.The findings validate the existence of components that are recognized to possess both physiological and therapeutic properties. Table - summarizes the phytochemical properties of the *Cinnamon verum* leaf extract under investigation. The findings indicate that the leaves *Cinnamon verum* contain compounds that are medicinally active, including euganol, tannins, alkaloids, terpenoids, steroids, flavonoids, phenol-betaine, and glycosides. whereas these plants lacked saponins. In medicine, eugenol and alkaloids found in plants are utilized as antiseptics.The bioactive components that may be accountable for the plants under study's leaves' effectiveness are phytochemical substances. It has also been established that several of these substances possess antibacterial properties. Therefore, it is possible to deduce that plant extracts could be a source for the industrial production of medications that are helpful in treating microbial infections with chemotherapy.

Fig 8 Cinnamon verum

Table 4: The following was the residual yield obtained from the Soxhlet extraction and evaporation of 50 grams of dried cinnamon verum leaves in methanol and water

Cinnamon leav**es** Extract	Yield amount (%) W/W
Aqueous	1.3%
Methanol	3.3%

Table 3: Phytochemicals constitute of the leaf extract of *Cinnamon verum* plant**:**

Chemical constituent	**Methanol extract**	**Water extract**
Eugenol	+	+
Tannins	+	-
Flavonoids	+	+
Saponins	-	-
Terpeniods	+	-
Steroids	+	+
Flavonoids	+	+
Saponins	-	-
Terpeniods	+	-
Steroids	+	+

Antibacterial activity of plant extract

In this study, 2 types of strains of E. coli bacteria (Enteropathogenic and Entrotoxigenic) bacteria were used for showing the antimicrobial properties of ethanolic, methanolic and aqueous extracts of *cinnamon verum* and *Ocimum tenuiflorum* using disc diffusion method.

Antiseptic activity of *Cinnamon verum* (Dalchini)

The highest zone of inhibition was observed for the methanolic extracts (13mm ±0.5) and aqueous extract (9mm ±0.5) against Escherichia Coli (Enteropathogenic). On the other hand, showed highest zone of inhibition methanolic extract (12mm ±0.5) and aqueous extract (10mm ±0.5) Against Escherichia Coli (Entrotoxigenic) table 5.

Table 5: The following table shows the zone of inhibition produced by *Cinnamon verum* against the selected bacteria:

Name of organisms	Zone of inhibition (mm)		
Bacterial strain	concentration	Methanolic extract	Aqueous extract
Escherichia Coli (Enteropathogenic)	1mg/ml	13mm±0.5	9mm ±0.5
Escherichia Coli (Entrotoxigenic)	1mg/ml	12mm±0.5	10mm ±0.5

Fig 9 zone of inhibition of *Cinnamon verum* against E. coli, (Enteropathogenic).

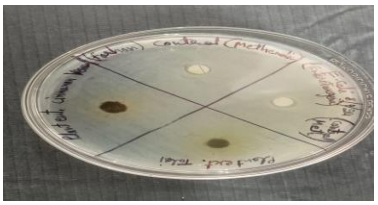

Fig 10 zone of inhibition of *Cinnamon verum* against E. coli, (Enterotoxigenic).

Antiseptic activity of *Ocimum tenuiflorum* (Tulsi):

The highest zone of inhibition was observed for the methanolic extracts (12mm±0.5) and aqueous extract (10mm±0.5) against Escherichia Coli (Enteropathogenic). On the other hand, showed highest zone of inhibition methanolic extract (13mm±0.5) and aqueous extract (10mm±0.5) against Escherichia Coli (Entrotoxigenic) table 6.

Table 6: The following table shows the zone of inhibition produced by *Ocimum tenuiflorum* against the selected bacteria**:**

Name of organisms	Zone of inhibition (mm)		
Bacterial strain	concentration	Methanolic extraction	Aqueous extraction
Escherichia Coli (Enteropathogenic)	1mg/ml	12mm ±0.5	10mm ±0.5
Escherichia Coli (Entrotoxigenic)	1mg/ml	13mm ±0.5	10mm ±0.5

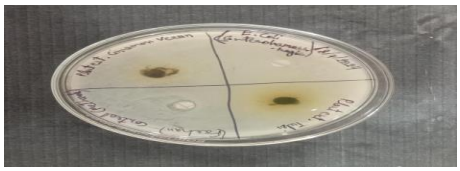

Fig 11 zone of inhibition of *Ocimum tenuiflorum* against E. coli, (Enteropathogenic).

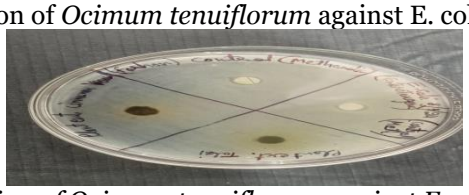

Fig *12 zone of inhibition of Ocimum tenuiflorum against E. coli, (Enterotoxigenic).*

SUMMARY & CONCLUSION:

SUMMARY

For the experimental results the following points can be summarized.

Together, two medicinal plants—*Cinnamon verum and Ocimum tenuiflorum*—were chosen, and their antiseptic properties were assessed against two different strains of E. coli— Entropathogenic (EPEC) and Entrotoxigenic (ETEC) bacteria—that are utilized in scientific studies. Using a soxhlet extractor, two solvents—methanol and aqueous—were utilized in ascending polarity order to extract the crude methanol and aqueous fraction. The methanol fraction of *cinnamon* yielded the highest percentage (4.5%), whereas the aqueous fraction yielded the lowest percentage (2.5%). and the *Ocimum tenuiflorum* methanol fraction produced the highest yield (5.6%), while the aqueous fraction produced the lowest yield (2.3%). The antiseptic activity was assessed using the broth dilution method and the Agar well diffusion method.

While *Ocimum tenuiflorum and Cinnamon verum* demonstrated comparatively broad-spectrum antiseptic activity (inhibiting two types of E. Coli strains and bacteria from the Entropathogenic (EPEC) and Entrotoxigenic (ETEC) species tested), *Cinnamon verum* demonstrated the least amount of antibacterial activity (inhibiting only two types of E. Coli strains and bacterial species). E. Coli was the most vulnerable of

all the bacteria studied; it was sensitive to eighteen fractions derived from two medicinal plants. Entropathogenic bacteria were the most sensitive among the examined Gram-negative bacteria, showing sensitivity to 11 fractions from two medicinal plants. The bacteria that was most resistant to all of the chosen plants was entrotoxigenic. The methanolic extracts of *Cinnamon verum* exhibited the maximum zone of inhibition (13 mm ±0.5) against Escherichia coli (Enteropathogenic); conversely, the aqueous extract displayed the lowest zone of inhibition.
In contrast, the methanolic extract of *Cinnamon verum* demonstrated the maximum zone of inhibition (12 mm ±0.5) against Escherichia coli (Entrotoxigenic), whilst the aqueous extract (10 mm ±0.5) had the lowest zone of inhibition. The methanolic extracts of *Ocimum tenuiflorum* showed the largest zone of inhibition (13 mm ±0.5) against the enteropathogenic Escherichia coli bacteria, whereas the aqueous extract of *Ocimum tenuiflorum* showed the lowest zone of inhibition (9 mm ±0.5) against the same bacteria. Conversely, the methanolic extract of *Ocimum tenuiflorum (*12 mm ±0.5) demonstrated the maximum zone of inhibition against Escherichia coli (Entrotoxigenic), whilst the aqueous extract (10 mm ±0.5) displayed the lowest zone of inhibition.

CONCLUSION:

For the testing of antiseptic activity of *Cinnamon verum* and *Ocimum tenuiflorum*,2 different extraction was used,Methanolic and Aqueous extraction. The yield percentage of methanolic extraction was higher than the aqueous extraction used Disc diffusion method and also measure the zone of inhibition. By performing the phytochemical test indicated the presence of euganol,
phenol, flavonoids, glycosides, amino acids ete. According to the zone of inhibition report, Methanolic extraction of *Cinnamon verum* and *Ocimum tenuiflorum* has higher antiseptics activity on both bacteria strain of E. coli (Entropathogenic and Entrotoxigenic). MIC for *Cinnamon verum* leaves methanolic extraction on Entropathogenic was 0.5mg/ml,for aqueous 1mg/ml. and MIC for *Cinnamon verum* leaves methanolic extraction on Entrotoxigenic was 0.5mg/ml, for aqueous 1mg/ml.and MIC for *Ocimum tenuiflorum* leaves methanolic extraction on Entropathogenic was 0.5mg/ml,for aqueous 1mg/ml. and MIC for *Ocimum tenuiflorum* leaves methanolic extraction on Entrotoxigenic was 0.5mg/ml, for aqueous 1mg/ml.

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