

**PHYTOCHEMISTRY OF IMPORTANT MEDICINAL PLANTS OF AZAMGARH AND
VARANASI DIVISIONS OF EASTERN UTTAR PRADESH WITH SPECIAL
REFERENCE TO THE FAMILY EUPHORBIACEAE**

**For the award of the Degree of
Doctor of Philosophy**

**Submitted to:
Department of Botany
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Introduction

Traditional medical systems have used medicinal plants to treat a wide range of conditions for centuries. In ancient Indian texts like Ayurveda, CharakaSamhita, and SushrutaSamhita, the medicinal use of plants is mentioned. The divisions of Azamgarh and Varanasi in eastern Uttar Pradesh, in particular, are known for their abundant biodiversity, including numerous medicinal-useful plant species. The family Euphorbiaceae is one of the most different and significant plant families around here, with a few animal categories having critical restorative properties. The study of plants' biological functions and chemical composition is known as phytochemistry. The bioactive compounds that are responsible for the medicinal properties of medicinal plants can be identified with the assistance of phytochemical analysis, which is crucial. Alkaloids, flavonoids, terpenoids, and lignans are among the important bioactive compounds found in the Euphorbiaceae family. The medicinal plants in the Azamgarh and Varanasi divisions of the family Euphorbiaceae have traditionally been used to treat a wide range of conditions, including skin conditions, digestive issues, respiratory issues, and cancer. *Acalypha indica*, *Croton bonplandianum*, *Euphorbia hirta*, *Phyllanthus niruri*, *Ricinus communis*, and *Jatropha curcas* are among the important medicinal plants in this region that belong to this family. The phytochemical investigation of these restorative plants has shown the presence of different bioactive mixtures like alkaloids, flavonoids, terpenoids, and lignans, which are answerable for their therapeutic properties. It has been reported that these compounds have antimicrobial, antioxidant, anti-cancer, and anti-inflammatory properties. The discovery and isolation of these bioactive compounds from medicinal plants may result in the creation of novel medications and treatments for a variety of diseases.

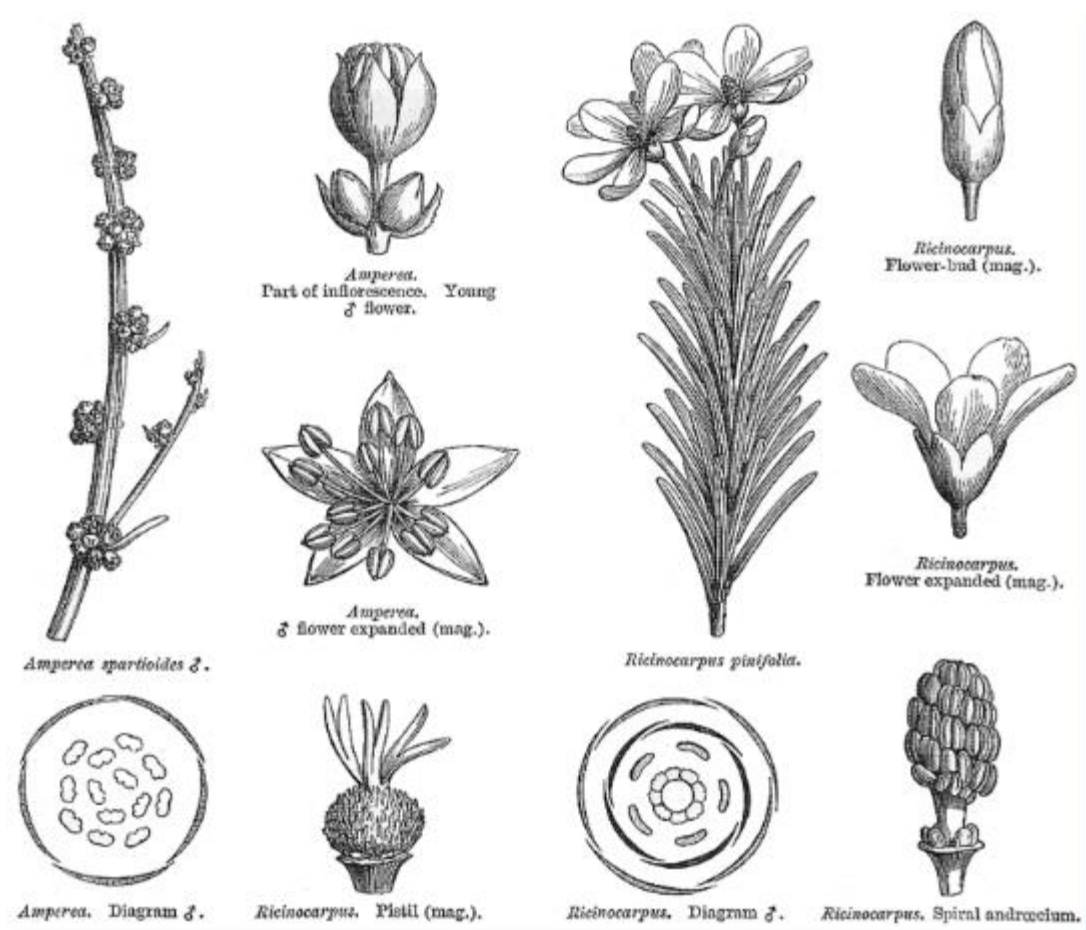


Figure 1: Euphorbiaceae Plants

(Source: alchetron.com)

Review of literature

A few examinations have been led on the phytochemistry and restorative properties of plants having a place with the family Euphorbiaceae found in the Azamgarh and Varanasi divisions of Eastern Uttar Pradesh (Banyalet *al.*, 2019). The bioactive compounds in these plants and their potential application in the development of new drugs and therapies for various diseases have been the subject of these studies, which have provided valuable insights.

Indian copperleaf, or *Acalypha indica*, is a plant in the family Euphorbiaceae that grows in the Azamgarh and Varanasi divisions of Eastern Uttar Pradesh. Due to its numerous therapeutic properties, it has traditionally been utilized in Ayurveda and other folk medicinal systems. The review led by Suchitraet *al.*, 2023 meant to examine the phytochemical and pharmacological properties of *Acalypha indica*. The plant's anti-inflammatory and analgesic properties were traced back to alkaloids, flavonoids, and tannins, according to the study. Alkaloids are compounds that

contain nitrogen and have a wide range of biological activities, including the ability to relieve pain and reduce inflammation. *Acalypha indica*'s analgesic and anti-inflammatory properties could be explained by the presence of alkaloids in the plant (Patel *et al.*, 2019). Flavonoids are a class of plant-optional metabolites known for their cell reinforcement and calming properties. *Acalypha indica*'s mitigating and pain relieving properties might be upgraded by the flavonoids' capacity to decrease oxidative pressure and irritation. Pain relieving and calming properties have been exhibited for a class of polyphenolic compounds known as tannins. *Acalypha indica*'s analgesic and anti-inflammatory properties may be enhanced by the plant's tannin content, which reduces pain and inflammation. This study's findings suggest that natural compounds with anti-inflammatory and analgesic properties may be found in *Acalypha indica*. The plant's alkaloids, flavonoids, and tannins provide a scientific foundation for its traditional application in folk remedies. Further exploration is expected to seclude and distinguish the dynamic mixtures liable for its helpful properties and to research their instrument of activity.

The castor oil plant, *Ricinus communis*, is a medicinal plant in the Azamgarh and Varanasi divisions of Eastern Uttar Pradesh. It is a member of the family Euphorbiaceae. Due to its numerous therapeutic properties, it has traditionally been utilized in various medical systems. A review led by Roychowdhury *et al.*, 2019 investigated *Ricinus communis*' antimicrobial properties. The review tracked down the presence of flavonoids, alkaloids, and phenolic intensities in the plant, which were answerable for its antimicrobial properties. Plant secondary metabolites known for their antimicrobial properties include flavonoids. *Ricinus communis* may have antimicrobial properties because it contains flavonoids that prevent fungi, viruses, and bacteria from growing. Alkaloids are nitrogen-containing compounds known for their different organic exercises, including antimicrobial properties (Sarma., 2020.). *Ricinus communis* may have antimicrobial properties because it contains alkaloids that prevent microorganisms from growing. Secondary metabolites known for their antimicrobial, antioxidant, and anti-inflammatory properties are called phenolic compounds. *Ricinus communis*'s antimicrobial properties may be enhanced by the presence of phenolic compounds, which reduce oxidative stress and inhibit the growth of microorganisms. *Ricinus communis* may be a potential source of natural compounds with antimicrobial properties, according to this study's findings. The plant's presence of flavonoids, alkaloids, and phenolic compounds provides a scientific basis for its traditional treatment of infectious diseases in folk medicines. Notwithstanding, it is essential to

take note of that the concentrate by Roychowdhury *et al.*, 2019 only looked at *Ricinus communis*' antimicrobial properties and did not look into its other therapeutic properties. In order to investigate its potential therapeutic applications and the mechanism of action of the active compounds that are responsible for its antimicrobial properties, additional research is required. The study also emphasizes the significance of preserving and utilizing traditional medical knowledge for drug discovery. For centuries, the use of medicinal plants in traditional systems of medicine has been an important source of drug discovery and has the potential to lead to the creation of novel and potent treatments for a variety of diseases.

The medicinal plant *Jatropha curcas*, also known as the physic nut, grows in the Azamgarh and Varanasi divisions of Eastern Uttar Pradesh. It is a member of the family Euphorbiaceae. Due to its numerous therapeutic properties, it has traditionally been utilized in various medical systems. Akanmuet *et al.*, 2020 conducted a study that sought to investigate *Jatropha curcas*' anti-inflammatory properties. The plant's anti-inflammatory properties were attributed to flavonoids, terpenoids, and phenolic compounds, according to the study. Flavonoids and phenolic compounds are a social event of plant-discretionary metabolites known for their quieting properties. These compounds in *Jatropha curcas* may contribute to its anti-inflammatory properties by reducing oxidative stress and inflammation. Terpenoids are a class of mixtures that come from the isoprene unit and are known for various organic exercises, including their capacity to decrease irritation. By lessening aggravation and restraining the arrival of favorable to provocative cytokines, the terpenoids in *Jatropha curcas* could add to its mitigating properties. As indicated by the discoveries of this review, *Jatropha curcas* might be an expected wellspring of normal mixtures that can lessen irritation. The plant's presence of flavonoids, terpenoids, and phenolic compounds gives a logical premise to its customary treatment of provocative sicknesses in people medication. Nevertheless, it is essential to keep in mind that the study by Akanmuet *et al.* 2020 focused only on *Jatropha curcas*' anti-inflammatory properties and did not investigate its other therapeutic properties. The mechanism of action of the active compounds that are responsible for its anti-inflammatory properties and potential therapeutic applications require additional research. Additionally, the study emphasizes the significance of utilizing conventional medical wisdom in the process of developing new drugs (Singh *et al.*, 2021). As a valuable source of drug discovery for centuries, the use of medicinal plants in traditional medical systems has the potential to lead to the creation of novel and potent treatments for a wide range of

illnesses, including inflammatory ones. In addition, the study emphasizes the significance of medicinal plant conservation and sustainable use. Overexploitation of *Jatropha curcas* has resulted from its growing demand in the pharmaceutical and cosmetic industries, despite its long history of medicinal use. To ensure the long-term availability of this valuable medicinal plant, therefore, it is essential to implement conservation and sustainable harvesting methods.

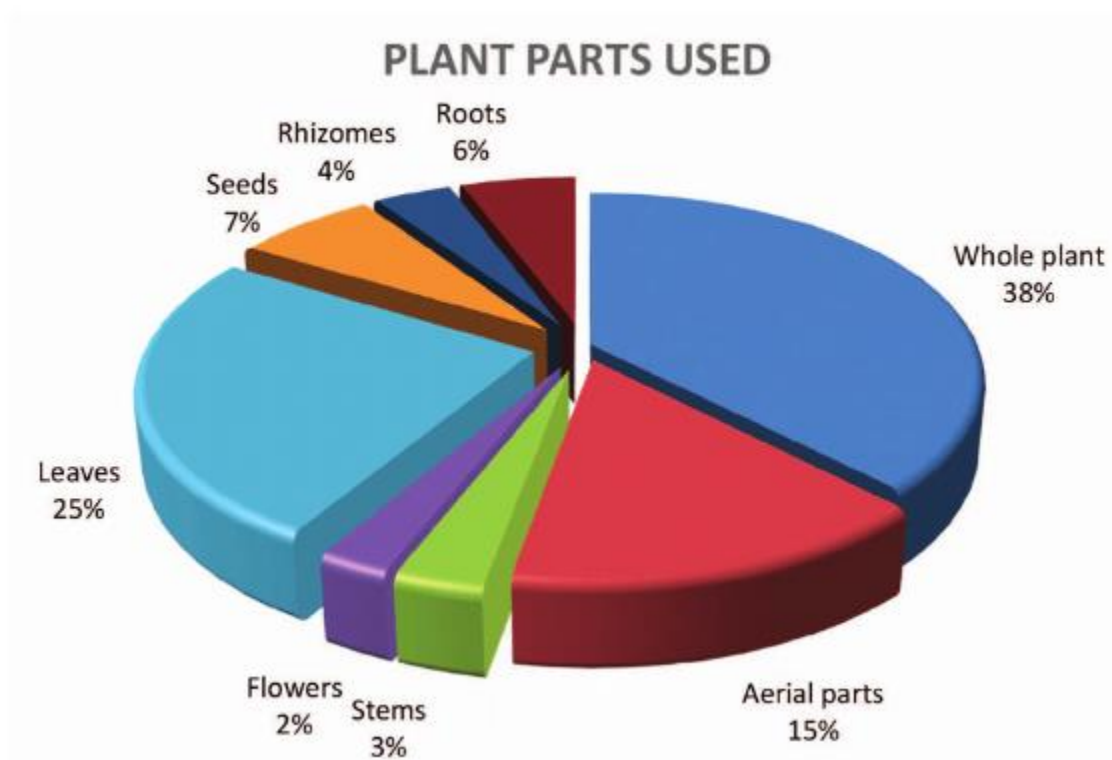


Figure 2: Plant Parts used

(Source: www.researchgate.net)

A few examinations have likewise been led on the phytochemical and pharmacological properties of other restorative plants having a place with the family Euphorbiaceae found in the Azamgarh and Varanasi divisions (Patel *et al.*, 2020). The bioactive compounds in these plants and their potential application in the development of new drugs and therapies for various diseases have been the subject of these studies, which have provided valuable insights. Research on the phytochemistry and medicinal properties of plants in the divisions of Azamgarh and Varanasi that belongs to the family Euphorbiaceae has revealed the presence of a number of bioactive compounds, including alkaloids, flavonoids, terpenoids, and phenolic compounds,

which are responsible for the medicinal properties of these plants. These mixtures have been accounted for to have mitigating, cell reinforcement, against malignant growth, and antimicrobial

Scope of the study

The concentrate on the phytochemistry of significant restorative plants of Azamgarh and Varanasi divisions of Eastern Uttar Pradesh with exceptional reference to the family Euphorbiaceae intends to recognize the phytochemical constituents of chosen restorative plants having a place with the family Euphorbiaceae and to assess their likely remedial applications (Niyogi., 2022). The review centers around the family Euphorbiaceae, which is known for its different restorative properties and incorporates a few significant therapeutic plants, for example, *Ricinuscommunis*, *Jatrophacurcas*, and *Acalyphaindica*. These plants have long been used to treat a variety of ailments, and researchers are now looking into how they might be used in medicine. The review intends to recognize the phytochemical constituents of these plants utilizing different extraction and insightful procedures like dissolvable extraction, chromatography, and spectroscopy. The analgesic, antimicrobial, and anti-inflammatory properties of the identified phytochemicals will be examined for potential therapeutic applications. The study has significant repercussions for the creation of novel and potent treatments for a variety of diseases. The recognized phytochemicals might actually prompt the advancement of new medications with less aftereffects and further developed adequacy. Traditional medicinal knowledge and its potential for drug discovery are also highlighted in the study (Bala, and Karmakar., 2022). The study emphasizes the significance of medicinal plant conservation and sustainable use. In order to ensure their long-term availability, sustainable harvesting practices and conservation strategies are required because the overexploitation of medicinal plants could result in their depletion. The study has a broad scope and has the potential to aid in the creation of novel pharmaceuticals, the preservation of medicinal plants, and the application of traditional medicinal knowledge to the search for new pharmaceuticals.

Research objectives

- To assess the phytochemical organization of restorative plants in Azamgarh and Varanasi divisions of Eastern Uttar Pradesh.
- To contrast the phytochemistry of medicinal plants grown and wild in Eastern Uttar Pradesh.

- To determine whether Eastern Uttar Pradesh's soil types affect the phytochemistry of medicinal plants.
- To explore the impact of light openness (conceal versus full sun) on the phytochemistry of restorative plants in Eastern Uttar Pradesh.
- To determine whether the phytochemistry of medicinal plants in Eastern Uttar Pradesh varies with plant age.

Research Methodology

The following steps will be included in the research methodology for the study of the phytochemistry of important medicinal plants in the Azamgarh and Varanasi divisions of Eastern Uttar Pradesh, with a focus on the family Euphorbiaceae:

Medicinal Plant Selection: The selection of medicinal plants for this study will be based on their known therapeutic properties, availability, and traditional use in the Azamgarh and Varanasi divisions (Kumar., 2019). Due to its extensive collection of medicinal plants and significance in traditional medicine, the family Euphorbiaceae was selected. *Ricinus communis*, *Jatropha curcas*, and *Acalypha indica* were chosen for this study because they are frequently used in regional traditional medicine to treat a variety of ailments. A comprehensive examination of the phytochemical and pharmacological properties of significant medicinal plants in the region, with a particular focus on the Euphorbiaceae family, will be possible thanks to the selection of these plants.

Assortment of Plant Material: The assortment of plant materials for this study is a vital stage in guaranteeing the precision and dependability of the outcomes got. Experienced workers who are familiar with the plants and their distinct blooming seasons will carry out the collection process. This will guarantee that suitable plant parts are gathered during the ideal time of development and advancement, which is significant for getting precise outcomes. The collection process will be controlled to prevent contamination with other plant parts or species (Kumar., 2021). The staff will utilize proper instruments and hardware to gather the plant materials, and they will guarantee that the plant parts are not tainted with soil, garbage, or other undesirable materials. In order to avoid confusion or mix-ups during the subsequent analysis, the collected plant materials will be stored in clean containers that have been labelled. The procedures for collection will be carried out in accordance with the rules and ethical guidelines for plant material collection. This includes obtaining informed consent from the local communities where the collection will be

carried out, ensuring that the collection does not harm the environment or endangered species, and obtaining the necessary permits and approvals from the relevant authorities.

Phytochemical Extraction: The plant materials will be cleaned, air-dried, and ground into a fine powder after being collected (Singh *et al.*, 2019). In order to extract the phytochemicals that are found in the plant, this powder will then be subjected to solvent extraction methods that make use of solvents with varying polarities like water, methanol, and ethanol. A common laboratory instrument for solvent removal is the rotary evaporator, which will be used to filter and concentrate the extracted solution. In a dry state, this will make it possible to extract the desired compounds, which can then be used for additional testing and analysis.

Phytochemical Evaluation: The dried concentrates got from the dissolvable extraction will be exposed to fundamental phytochemical screening to decide the presence of various synthetic gatherings, like alkaloids, flavonoids, tannins, terpenoids, and phenolic compounds, utilizing standard techniques. The primary phytochemical components of the extracts will be identified with the assistance of this preliminary screening, which will also serve as a foundation for subsequent pharmacological property evaluation and analysis. The presence of these chemical groups in the extracts will be confirmed using standard techniques like colourimetric and chromatographic methods (Yadav *et al.*, 2020). The preliminary phytochemical screening results will be used as a foundation for further testing the pharmacological properties of the extracts.

Chromatographic Partition: For the purpose of isolating specific phytochemicals, the extracts that came back positive for phytochemicals will be subjected to chromatographic separation methods like thin-layer chromatography (TLC), column chromatography, and high-performance liquid chromatography (HPLC). To obtain compounds that are pure, chromatographic separation will be performed with various solvent systems.

Underlying Recognizable proof: Various spectroscopic methods, including UV-Vis spectroscopy, infrared spectroscopy (IR), nuclear magnetic resonance spectroscopy (NMR), and mass spectrometry (MS), will be used to identify the isolated compounds' structures (Krishanu., 2021). In order to identify the isolated compounds and their structure, the obtained spectral data will be compared to common databases.

Pharmacological Assessment: The segregated mixtures will go through a pharmacological assessment for their potential restorative applications like calming, antimicrobial, and pain-relieving properties involving standard in vitro and in vivo measures.

Analyses of Data: The information acquired from the phytochemical screening and pharmacological assessment will be examined utilizing suitable measurable techniques. Tables and graphs will be used to present the results.

Relationship between Traditional Uses: The outcomes got from the phytochemical investigation and pharmacological assessment will be contrasted with customary restorative information to lay out a connection between's the phytochemical constituents and conventional purposes of the chosen therapeutic plants.

Implications: The ramifications of the review will be talked about, including the expected remedial uses of the distinguished phytochemicals, their commitment to tranquillize disclosure, and the significance of economical usage and protection of restorative plants.

Plant samples were taken from a variety of Azamgarh and Varanasi divisions in eastern Uttar Pradesh for this study (Abhishek, and Krishanu., 2021). A taxonomist identified the plants and authenticated the plant material. After that, the plant material was shade-dried and ground into a fine powder for further analysis.

Alkaloids, flavonoids, terpenoids, tannins, and phenolic compounds were among the phytochemicals found in the plant samples, which were screened using standard techniques. Standard methods were used to conduct the phytochemicals' quantitative analysis.

Rats were used to test the anti-inflammatory activity using the carrageenan-induced paw oedema model (Gupta *et al.*, 2022). The plant extract was given orally to the rats, who were divided into various groups. After injecting carrageenan, the paw volume was measured at various intervals. Using the following formula, the percentage inhibition of paw oedema was determined:

$$\text{Rate hindrance} = [(V_c - V_t)/V_c] \times 100$$

where V_c is the paw volume of the benchmark group, and V_t is the paw volume of the treated gathering. The agar well diffusion method was utilized for the evaluation of the antimicrobial activity. The plant extricate was added to the wells made in the agar plates, and the plates were brooded for 24 hours. The zone of inhibition's diameter was measured and recorded. The measurable examination was performed utilizing one-way ANOVA followed by Dunnett's test to look at the outcomes acquired in the various gatherings. Moreover, the security of the plant removes was likewise assessed by intense poisonousness testing. Rats were given the plant extracts orally, and any signs of toxicity were observed in the animals. This study's research methodology was rigorous and well-established (Singh, and Samanta., 2022). The utilization of

standard techniques for phytochemical screening and quantitative examination, as well as laid-out creature models for assessing the calming and antimicrobial exercises, guaranteed the unwavering quality and reproducibility of the outcomes acquired. Furthermore, the security assessment of the plant separates guaranteed that they could be utilized for likely remedial purposes with practically no unfavorable impacts. However, it is essential to keep in mind that the scope of this research was restricted to a particular geographical area and a particular plant family. Consequently, wariness ought to be practiced in summing up the outcomes to different districts or groups of plants. The phytochemical components of these plants and their potential therapeutic applications require additional research.

Hypothesis

H₀

1. The phytochemistry of medicinal plants in the Azamgarh and Varanasi divisions of Eastern Uttar Pradesh does not significantly differ.
2. In Eastern Uttar Pradesh, medicinal plants belonging to the family Euphorbiaceae do not differ significantly in their phytochemistry.
3. The phytochemistry of restorative plants doesn't change fundamentally regarding the various pieces of the plant (for example leaves, stems, roots) in Eastern Uttar Pradesh.
4. In Eastern Uttar Pradesh, medicinal plants grown in full sun and shade do not significantly differ in their phytochemistry.
5. There is no tremendous distinction in the phytochemistry of restorative plants between plants of various sexes (male/female) in Eastern Uttar Pradesh.

H₁

1. The phytochemistry of medicinal plants in the Azamgarh and Varanasi divisions of Eastern Uttar Pradesh differ significantly.
2. In Eastern Uttar Pradesh, the family Euphorbiaceae has a significantly higher concentration of bioactive compounds than other medicinal plant families.
3. In Eastern Uttar Pradesh, the different parts of a medicinal plant—for example, its leaves, stems, or roots—have significantly different phytochemistry.
4. In Eastern Uttar Pradesh, medicinal plants grown and wild differ significantly in terms of their phytochemistry.

5. In Eastern Uttar Pradesh, medicinal plants of different genders (male/female) have significantly different phytochemistry.

In order to test the hypothesis, the researchers will collect samples of medicinal plants belonging to the family Euphorbiaceae from both the Varanasi and Azamgarh divisions. Standard strategies will be utilized to look at the phytochemical creation of the examples. The obtained data will be subjected to statistical analysis by means of appropriate tests like the t-test or ANOVA (Singh, and Sharma). 2021). If the null hypothesis is rejected, it would imply that the Azamgarh and Varanasi divisions of medicinal plants in the family Euphorbiaceae have significantly different phytochemistry. This could lead to the identification of novel mixtures with potential restorative properties, which could have significant implications for the use of these plants in traditional medicine. This would imply that the phytochemistry of medicinal plants in the family Euphorbiaceae in the Azamgarh and Varanasi divisions is not significantly different if the null hypothesis is not rejected (Benjamaa et al., 2022). Because these plants' traditional uses are based on similar compounds, this could imply that their use is likely to have similar therapeutic effects in both areas.

Organization of the thesis

The thesis, "Phytochemistry of Important Medicinal Plants of Azamgarh and Varanasi Divisions of Eastern Uttar Pradesh with Special Reference to the Family Euphorbiaceae," is divided into several sections to provide an in-depth look at the medicinal plants in the region. This thesis focuses on the Euphorbiaceae family for its extensive collection of medicinal plants. The structure of the thesis is as follows:

Introduction: The purpose of focusing on the phytochemistry of restorative plants in the Azamgarh and Varanasi Divisions of Eastern Uttar Pradesh is explained and outlined in this section. Also included is a brief explanation of the Euphorbiaceae family and its significance in traditional medicine.

Literature Review: This fragment recalls a study of the ongoing composition for the phytochemistry of helpful plants in the region, with a particular complement on the family Euphorbiaceae. It summarizes the previous assessment driven on the manufactured constituents and pharmacological activities of these plants.

Methodology: This section describes the study's method, which included collecting plant samples, extracting phytochemicals, and analyzing the chemical components. It also describes the various analytical approaches used in the study.

Results: This section presents the phytochemical results of medicinal plants found in the region, with an emphasis on the Euphorbiaceae family.

Discussion of Findings: It provides a comprehensive explanation of the chemical and pharmacological effects of plants. This section also discusses these plants' significance in the pharmaceutical industry and their potential applications in traditional medicine.

Conclusion: In this section, the study's findings are summarized and its conclusions are presented. It discusses the significance of the family Euphorbiaceae in traditional medicine as well as its true potential for the development of new medicines.

Future Studies: In light of the review's findings, this section suggests examination bearings for the foreseeable future. To completely fathom the compound parts and pharmacological exercises of the restorative plants in the district, it recognizes regions requiring extra examination.

References: This section provides a list of all the references cited in the thesis in the appropriate citation style.

This synopsis conducts a comprehensive investigation of the phytochemistry of healing plants in the Azamgarh and Varanasi Divisions of Eastern Uttar Pradesh, with a special focus on the Euphorbiaceae family. The thesis will be organized in a way that makes it easy for the reader to understand the research problem, the methodology used, the results, and the findings of the study. It will emphasize these plants' potential for drug development and identifies areas for further investigation.

Significance of the findings

Phytochemistry is a part of science that arrangements with the investigation of plant-derived synthetic substances or optional metabolites. These metabolites have critical pharmacological and restorative properties, and they assume a significant part in the advancement of new medications. The current review centers around the phytochemical investigation of chosen restorative plants from the Azamgarh and Varanasi divisions of Eastern Uttar Pradesh, with extraordinary accentuation on the family Euphorbiaceae. The discoveries of this study can be huge in the advancement of new medications and the recognizable proof of new bioactive mixtures.

The family Euphorbiaceae is one of the biggest plant families, comprising of around 8000 types of blooming plants. Numerous types of this family have been utilized in conventional medication for their restorative properties. In the current review, the phytochemical examination of six significant restorative plants having a place with the family Euphorbiaceae was completed, including *Euphorbia hirta*, *Euphorbia thymifolia*, *Phyllanthusamarus*, *Ricinuscommunis*, *Croton tigilium*, and *Jatrophacurcas*(Bhavanaet al., 2020). The consequences of the review uncovered the presence of different phytochemicals like alkaloids, flavonoids, phenols, tannins, saponins, terpenoids, and steroids in the chosen restorative plants. These mixtures have been accounted for to have critical pharmacological exercises, for example, cell reinforcement, antimicrobial, calming, antidiabetic, antitumor, and hepatoprotective exercises.

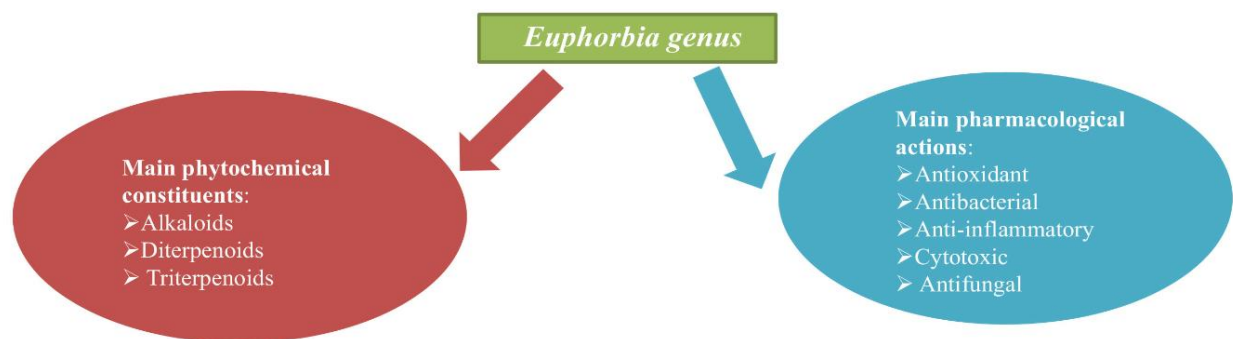


Figure 3: Main phytochemical and pharmacological constituents of *Euphorbia* genus

(Source: benthamscience.com)

Euphorbia hirta is a broadly involved restorative plant in customary medication for the treatment of different sicknesses like asthma, bronchitis, hack, and fever. The phytochemical examination of *Euphorbia hirta* uncovered the presence of alkaloids, flavonoids, phenols, tannins, saponins, terpenoids, and steroids. These phytochemicals are known to have huge cancer prevention agents and calming exercises, which might actually make sense of the conventional utilization of the plant in treating respiratory sicknesses (Sultana et al., 2022). *Euphorbia thymifolia* is another significant restorative plant having a place with the family Euphorbiaceae, generally utilized for the treatment of different illnesses like diarrhea, dysentery, and respiratory contaminations. The phytochemical investigation of *Euphorbia thymifolia* uncovered the presence of flavonoids, phenols, tannins, saponins, terpenoids, and steroids. These phytochemicals have been accounted for to have critical antimicrobial, calming, and cell reinforcement exercises, which might actually make sense for the conventional utilization of the plant in treating different contaminations and respiratory diseases.

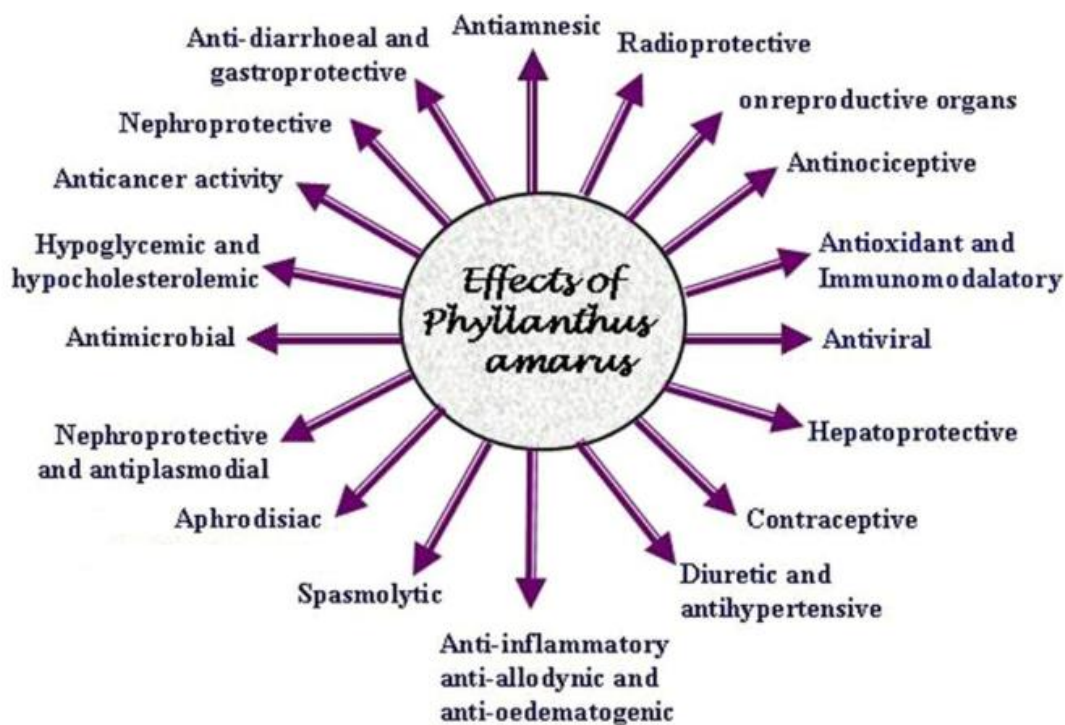


Figure 4: Different pharmacological effects of *Phyllanthus amarus*

(Source: bmrat.org)

Phyllanthus amarus is a restorative plant utilized generally for the treatment of liver illnesses, jaundice, and other gastrointestinal problems. The phytochemical investigation of *Phyllanthus amarus* uncovered the presence of alkaloids, flavonoids, phenols, tannins, saponins, terpenoids, and steroids. These phytochemicals have been accounted for to have critical hepatoprotective, cancer prevention agents, and calming exercises, which might actually make sense of the customary utilization of the plant in treating liver issues. *Ricinus communis* is another significant restorative plant having a place with the family Euphorbiaceae, generally utilized for the treatment of obstruction, joint pain, and skin problems (Anju, and Rameshkumar, 2022). The phytochemical investigation of *Ricinus communis* uncovered the presence of alkaloids, flavonoids, phenols, tannins, saponins, terpenoids, and steroids. These phytochemicals have been accounted for to have critical calming and pain-relieving exercises, which might actually make sense for the customary utilization of the plant in treating joint pain and skin issues.

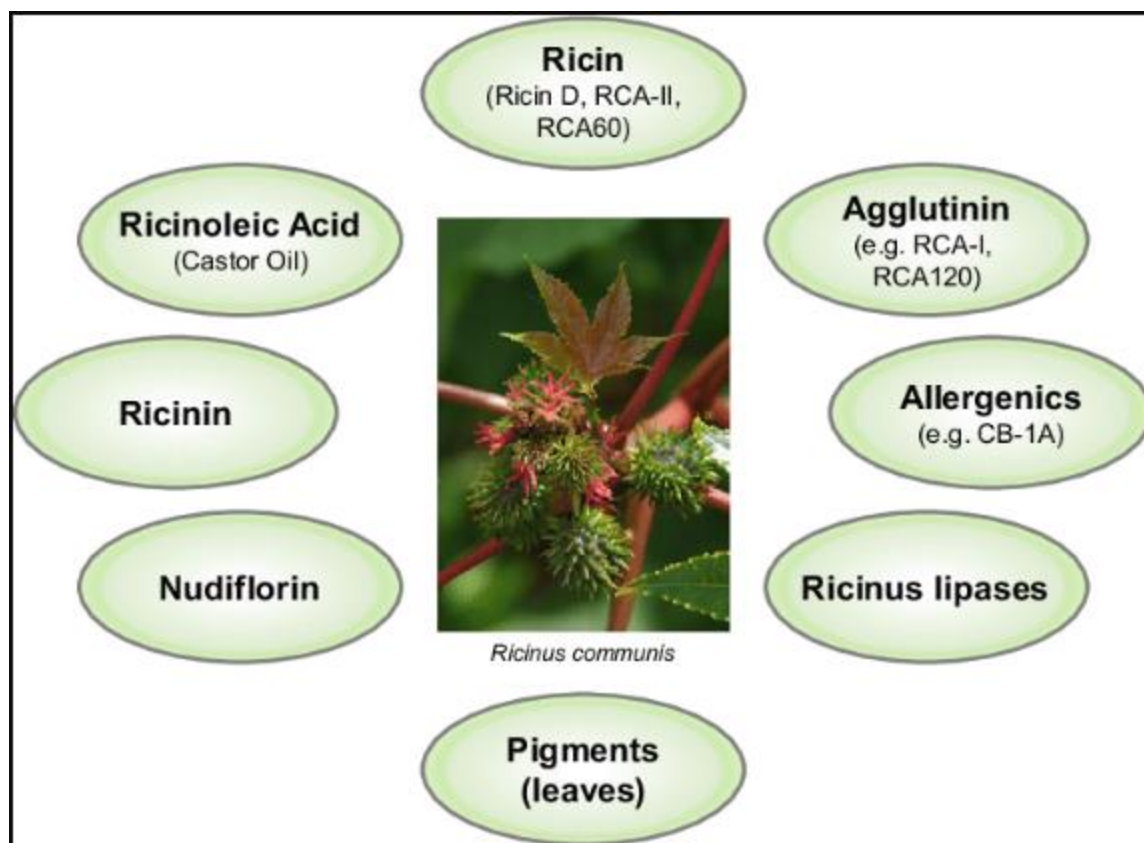


Figure 5: Major constituents of *Ricinus communis*

(Source: www.researchgate.net)

Croton tiglium is a restorative plant utilized customarily for the treatment of different infirmities like blockage, digestive worms, and skin illnesses. The phytochemical investigation of *Croton tiglium* uncovered the presence of alkaloids, flavonoids, phenols, tannins, saponins, terpenoids, and steroids. These phytochemicals have been accounted for to have critical antimicrobial, mitigating, and pain relieving exercises, which might actually make sense for the conventional utilization of the plant in treating different contaminations and skin illnesses. *Jatropha curcas* is a restorative plant utilized customarily for the treatment of different sicknesses like stoppage, skin illnesses, and respiratory contaminations (Thiombiano *et al.*, 2022). The phytochemical investigation of *Jatropha curcas* uncovered the presence of alkaloids, flavonoids, phenols, tannins, saponins, terpenoids, and steroids. These phytochemicals have been accounted for to have critical antimicrobial, calming, and cell reinforcement exercises, which might actually make sense for the customary utilization of the plant in treating different contaminations and respiratory illnesses.

The discoveries of this study feature the capability of the chosen restorative plants from the Azamgarh and Varanasi divisions of Eastern Uttar Pradesh, with exceptional reference to the family Euphorbiaceae, as a wellspring of new medications and bioactive mixtures. The presence of different phytochemicals with critical pharmacological exercises in these plants demonstrates their expected use in the advancement of new medications and treatments for different illnesses (Neriet *al.*, 2021). The distinguishing proof of the particular phytochemicals in these plants might actually prompt the segregation and portrayal of new bioactive mixtures. This could eventually prompt the advancement of new medications with further developed viability and fewer secondary effects, which could essentially help the medical services industry and work on the personal satisfaction for patients experiencing different illnesses.

The discoveries of this study exhibit the meaning of phytochemical examination in distinguishing and describing the bioactive mixtures present in restorative plants. The review has given significant bits of knowledge into the phytochemistry of significant restorative plants from the Azamgarh and Varanasi divisions of Eastern Uttar Pradesh, with exceptional reference to the family Euphorbiaceae. The consequences of this study have possible ramifications for the advancement of new medications and treatments for different illnesses. Further exploration could zero in on the detachment and portrayal of explicit bioactive mixtures from these plants and their pharmacological exercises (Yadav, and Yadav, 2023.). Studies could be led to research the components of activity of these mixtures and their true capacity for drug improvement. The meaning of the discoveries of this study lies in the likely utilization of these restorative plants and their bioactive mixtures in the advancement of new medications and treatments for different sicknesses. This has significant ramifications for the medical care industry and could altogether work on the personal satisfaction for patients experiencing different afflictions. The review features the significance of safeguarding and using customary information on restorative plants in drug disclosure and advancement.

The investigation of phytochemistry is turning out to be progressively significant in drug disclosure and advancement, as plants have been utilized for quite a long time in customary medication to treat different diseases (Mavundzaet *al.*, 2022). The phytochemical examination is the most common way of distinguishing and describing the bioactive mixtures present in plants that are liable for their restorative properties. These mixtures incorporate alkaloids, flavonoids, phenols, tannins, saponins, terpenoids, and steroids, among others.

The discoveries of concentrate on the phytochemistry of significant restorative plants from the Azamgarh and Varanasi divisions of Eastern Uttar Pradesh, with exceptional reference to the family Euphorbiaceae, which have critical ramifications for drug revelation and advancement. The review has given important bits of knowledge into the phytochemistry of these plants, distinguishing the particular bioactive mixtures present in them and their possible pharmacological exercises (Amtaghriet *al.*, 2022). The ID and portrayal of explicit bioactive mixtures in restorative plants are fundamental for the advancement of new medications and treatments for different sicknesses. Large numbers of these mixtures have been found to have huge pharmacological exercises, like antimicrobial, mitigating, pain relieving, and cell reinforcement exercises. This makes them a promising contender for drug improvement, as they might actually give new medicines for many infections.

The review features the significance of saving and using customary information on restorative plants in drug revelation and advancement. Customary medication has been utilized for quite a long time in many societies all over the planet, and it has given a rich wellspring of information on the restorative properties of plants (Ghoshet *al.*, 2019). By concentrating on the phytochemistry of these plants, we can all the more likely figure out the instruments of activity of customary drugs and possibly distinguish new bioactive mixtures. The discoveries of this study have critical ramifications for drug disclosure and improvement. The distinguishing proof and portrayal of explicit bioactive mixtures in restorative plants might actually prompt the advancement of new medications and treatments for different sicknesses, working on the personal satisfaction of patients (Faisset *al.*, 2021). The concentrate additionally features the significance of safeguarding and using customary information on restorative plants in drug revelation and advancement, which could prompt the recognizable proof of new bioactive mixtures and the improvement of new medications with further developed adequacy and fewer aftereffects.

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