Research Article

Primary phytochemical analysis of *Ricinus communis*

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ABSTRACT

Aim and Objective: The growth and usage of synthetic drugs may cause side effects like mental illness or the other physiological imbalances. A new approach for treating diabetic complications is possible by using alternative medications from medicinal plants which possess many active bio-compounds. **Materials and methods:** The plant sources consist of important phyto-constituents such as polyphenols, flavonoids, alkaloids and other components which acts against defective cellular metabolism and regulate its functional property. The active compounds from the plants could be recorded and systematically validated to increase the plant-based medicines with fewer side effects or without side effects, the vast family Euphorbiaceous contains almost around 300 genera and 7,500 species. **Results and Discussion:** Among all, *Ricinus communis* L. or on the other hand castor bean plant has high customary and restorative qualities towards a malady free network. The castor bean plant is successful as subterranean insect ripeness action, insect implantation action, antinociceptive action, anticancer action, cell reinforcement movement, immunomodulatory action, hepatoprotective action, against diabetic action, antiulcer action, antimicrobial action, insecticidal action, molluscicidal and larvicidal action, bone recovery action, focal pain relieving action, antihistaminic action, antiasthmatic action, cytotoxic action, lipolytic action, calming action, and wound mending action. **Conclusion:** Furthermore, the constituents present in this plant are helpful with the end goal of contraception, leaving no unfavorable consequences for the body. The target of the present rstudy centers around the phytochemical constituents, pharmacological exercises and future points of view of the *R. communis* L. plant.

KEY WORDS: Chemical constituents, Restorative plant, *Ricinus communis* L.

INTRODUCTION

The significance of common item in the treatment of illness has been expanded in view of its regular source and relatively lesser reactions when contrasted with the intricacy in detailing synthetic based medications just as uprising cost has driven overall specialists to concentrate on the restorative plant investigate. In excess of 80% of South Asia's kin have no entrance to current social insurance, they depend rather on customary medication utilizing local species. Truth be told, numerous indigenous and neighborhood networks are massive stores of customary information that can profit biotechnology, farming, pharmaceutical improvement, and social insurance. India has a rich assorted variety of restorative just as fragrant plants and holds an exceptional spot on the planet in the conventional arrangement of medication. Today, as per the World Health Organization, the same number of as 80% of the world's kin rely on conventional prescription for essential medicinal service needs. The homegrown meds are nearly more secure than engineered drugs. Restorative plants contain some natural mixes which give clear physiological activity on the human body, and these bioactive substances incorporate tannins, alkaloids, starches, terpenoids, steroids, and flavonoids.

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Ricinus communis L. (Euphorbiaceous), ordinarily known as castor oil plant, is a delicate wooden little tree created all through tropics and warm temperature districts.[1,2] This plant is indigenous toward the southeastern Mediterranean Basin, Eastern Africa, and India, however, is far reaching all through tropical areas and is broadly utilized as a decorative plant. The plant is likewise utilized in African people prescription in the treatment of moles, cold tumors, and indurations of mammary organs, corns, and moles. The mitigating, cancer prevention agent, antimicrobial, and cytotoxic exercises of the plant were illustrated.[3,4]

MATERIALS AND METHODS

Plant materials: The leaf, stem, and seeds of *R. communis* were collected from various localities of Marathwada.

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They were shade dried at room temperature for 4–5 days. Fine powder was made from these plant parts. This powder was utilized for further studies.

Planning of crude extract in solvents solvent concentrate was set up in various solvents at room temperature by basic extraction method.[5] Collected plant parts were shade dried and ground to fine powder utilizing processor blend. Dried powder of each plant parts 10 gm was blended in 100 ml of various concentrate dissolvable (CH3)2CO, ethyl acetic acid derivation in cone-shaped jar. The jars were stopped with papers. Every funnel-shaped jar was kept on shaker for 5 h. Tests were then sifted and centrifuged at 5000 rpm for 15 min. The supernatant was gathered and the dissolvable was dissipated at 450°C, 1 ml in vacuum evaporator. Phytochemical analysis identification of the chemical constituent polyphenolic mixes, flavonoids, glycosides, saponins, tannins, and alkaloids was completed utilizing distinctive dissolvable concentrates (methanol, ethanol, oil ether, chloroform, and watery).

Phytochemical Constituent Analysis

The phytochemical analysis of plant extracts is followed by Harborne methods.[6]

Foam test:

Take 1 ml of plant extract and dilute with distilled water to 5 ml and shake the content continuously for 5 min. Formation of foam indicates the formation of saponins.

Detection of Phytosterols

Salkowski's test

To 1 ml of extract, add 1 ml of chloroform and add few drops of concentrated sulfuric acid.

Shake the content and allow it to stand for few minutes. Appearance of golden yellow color indicates the presence of triterpenes.

Libermann–Burchard's test

To 1 ml of leaf extract, add equal volumes of chloroform and few drops of acetic anhydride. Boil the contents of 5 min and allow it to cool. Add few drops of concentrated sulfuric acid onto walls of test tube. Brown ring formation at the junction indicates the presence of phytosterols.

Detection of Phenols

Ferric chloride test

Add 3–4 drops of ferric chloride solution to 1 ml of the extract. Observe for the formation of bluish black color which then indicates the presence of phenols.

Detection of tannins

To 2 ml of the extract, add few drops of ferric chloride solution appearance of blue color indicate the presence of hydrolysable tannins and green color indicates the presence of condensed tannins.

Detection of Flavonoids

Alkaline reagent test

To 2 ml of the extract add 2 ml of sodium hydroxide solution. Intense yellow color formation indicates the presence of flavonoids.

Lead acetate test

To 2 ml of the extract, add 2 ml of the acetate solution. Intense yellow color formation indicates the presence of flavonoids.

Detection of proteins and amino acids

Xanthoproteic test

To 1 ml of the extract, add few drops of concentrated nitric acid. Formation of yellow colorindicates the presence of proteins.

Ninhydrin test

Add 0.25% w/v of ninhydrin reagent to the extract and boil for few minutes. Appearance of blue color indicates the presence of amino acids.

Detection of Diterpenes

Copper acetate test

To 2 ml of the plant extract, add 3–4 drops of copper acetate solution. Formation of emerald green color indicates the presence of diterpenes.

RESULTS AND DISCUSSION

Test performed	Acetone	Ethyl acetate
Saponin	–	–
Flavonoids	+	+
Phenols	–	–
Tannins	–	–
Proteins	+	+
Phytosteroids	–	–
Carbohydrates	+	+
Cardiac glycoside	+	+
Terpenoids	–	–
Diterpenes	+	+

Figure 1: Result analysis of different primary metabolites in this plant extract

REFERENCES

1. Kumari KG, Ganesan M, Jayabalan N. Somatic organogenesis and plant regeneration in *Ricinus communis*. Biol Plant 2008;52:17-25.
2. Lakshmamma P, Prapaga L. Identifying the sources of tolerance for drought in castor, *Ricinus communis* L. J Oilseeds Res 2006;33:348-52.
3. Ajibesin KK, Ekpo BA, Bala DN, Essien EE, Adesanya SA. Ethnobotanical survey of Akwa Ibom state of Nigeria.

J Ethnopharmacol 2008;115:387-408.
4. Capasso F, Mascolo N, Izzo AA, Gaginella TS. Dissociation of castor oil induced diarrhea and intestinal mucosal injury in rat: Effect of NG-nitro-L-arginine methyl ester. Br J Pharmacol 1994;113:1127-30.
5. Eloff JN. Which extractant should be used for the screening and isolation of antimicrobial component from plants? J Ethnopharm 1998;60:1-8.
6. Harborne JB. Phytochemical Methods: A Guide to Modern Technique of Plant Analysis. London: Champman and Hall; 1998.

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