

PHYTOCHEMICAL STUDY OF DIFFERENT PART OF RICINUS COMMUNIS

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خلاصہ

طبی پودوں کا انسانی صحت میں اہم کردار ہے۔ Euphorbiaceae خاندان میں 7500 انواع ہیں جن میں زیادہ تر پھولدار پودے ہیں۔ سب کے درمیان، Ricinus communis پودوں میں اعلیٰ روایتی دواؤں کی قدریں ہیں۔ یہ جلاب، رفع حاجت، کھاد اور فنگسائڈ کے علاج میں استعمال ہوتا ہے۔ موجودہ مطالعہ Ricinus communis کے مختلف حصوں کے میٹابولک نیچوڑ سے میٹابولائٹ کا اندازہ کرنے کے لئے کیا گیا ہے۔ نیچوڑ میں فینولک مرکبات، فلیوونائڈز، ٹیننز، ٹیرپینوئڈز، سپوننز، الکلانائڈز، سٹیرائڈز اور اینتھرائون کی موجودگی کو ظاہر کیا گیا ہے۔ پودے میں اینٹی آکسیڈینٹ، اینٹی ہشاک، اینٹی ہسٹامک، اینٹی آسٹھمٹک، اینٹی السر، امیونوموڈولیٹری، اینٹی ڈائریٹیک، اینٹی فلیوونائڈز، اینٹی فلیونٹ، اینٹی ہسٹامک، اینٹی ہسٹامک، اینٹی آکسیڈینٹ۔ antimicrobial، مرکزی اعصابی نظام کا محرک، lipolytic، زخم بھرنے والا، کیڑے مار دوا، اور لاروا کش خصوصیات، بہت سے دوسرے کے درمیان۔ دواؤں کی خصوصیات اس پودے کی سرگرمی کی وجہ کلیدی فاسٹو کیمیکل عناصر جیسے flavonoids، glycosides، saponins، اور steroids، tannins، alkaloids کی موجودگی سے منسوب ہے اس مقالے کا مقصد Ricinus communis کی phyto-pharmacological خصوصیات کی پیچیدگیوں کو واضح کرنا ہے۔ مستقبل کے لیے۔

Abstract

Medicinal plants have a vital role in the human health. The family euphorbiaceae contain 7500 species of plants, mostly are flowering plants. Among the all, Ricinus communis plants has high traditional medicinal values. It is used in the treatment of laxative, purgative, fertilizer and fungicide. The current study was carried out to evaluate the secondary metabolite from the metabolic extract of different parts of Ricinus communis. The extract shown the presence of phenolic compounds, flavonoids, tannins, terpenoids, sponins, alkaloids, steroids and Anthranone. The plant has anti-oxidant, antihistamic, antinociceptive, antiasthmatic, antiulcer, immunomodulatory, antidiabetic, hepatoprotective, antifertility, anti-inflammatory, antimicrobial, central nervous system stimulant, lipolytic, wound healing, insecticidal, and larvicidal properties, among many other medicinal qualities. The plant activity is attributed to the presence of key phytochemical elements such as flavonoids, saponins, glycosides, tannins, alkaloids and steroids. The purpose of this study is to clarify the intricacies of Ricinus communis' phyto-pharmacological qualities for the future.

Key words: anti microbial, phytochemical, herbal, anti-Oxidant, antimicrobial.

Introduction

The life of any kingdom is impossible without nature of plants are considered as main component of nature. Every plant play its role in nature. Herbs are the primary produceer in eco system. Every part of the world has own flora. It is usefor the medical and food purpose. Ricinus communis belong to the family Euphorbiaceae (Saand, *et al.*, 2019). It is commonly known as coster oil plant in English, in Urdu is called Arand (Rana, *et al.*, 2012). It is a fast growing suckering perennial shurb. Leaves are green or reddish in colour is diameter aprox 30 to 60 cm and it contain 5 to 12 deep lobes (Jena & Gupta, 2012).it is a medically important plant. south Asia region It is use intherapeutically purpose.It contains valuable numbers of secondary metabolite which are able to inhibit the growth of different bacterial strains, due to it this reason it is used as amedicine (Patil & Bhise, 2015) Ricinus communis grown in different region of the world at industrial scale for the production of the castor oil (Worbs,*etal.*,2011) The fruit extract of the Ricinus communis is used for the treatment of breast cancer (Majumder, *et al.*, 2019). It contains agglutinin, it inhibits β -D-lactose terminal (Nicolson & Blaustein, 1972). The podwer of the leaves use to combat against mosquito bite (Abdul,*etal.*, 2018). It is used against the diabetic (Baddar, *et al.*, 2011). it is also using for joints pain rheumatic pain and paralysis treatment (Rahman, *et al.*, 2013). Castor seed oil in demand be pharmaceutical industry and also used in the biodeisel production (Isaza, *et al.*, 2018). It has the anti fertilty effects on male rat. It able to reduce the epididymal sperm count. It cause alternation in motility, mode of movement and marphology of the sperm (Sandhyakumary, *et al.*, 2003). Mice, rats, and other rodents pose a threat to food production and serve as disease reservoirs all over the world. The

annual rice loss caused by rodents in Asia alone could feed approximately 200 million people (Stenseth, *et al.*, 2003).

Material Method

2.1 Collection of plant material, drying and storage

Parts of *Ricinus communis* were collected from the karoonjhar hills district Tharparkar, Sindh, Sample has washed with running water and dried for 15 days at room temperature. In south asian region. It is considered as medically important plant. That is used for therapeutic purpose. These parts were ground to fine powder using a mortar and pestle and stored at room temperature in closed glass container. Initially these refine sample was placed in dark room to prevent from moisture.



Fig 01: Sample collection from karoonjhar district thar parkar
(Source: <https://earth.google.com/web/search/Karoonjhar+Mountains,+Sardharo>)

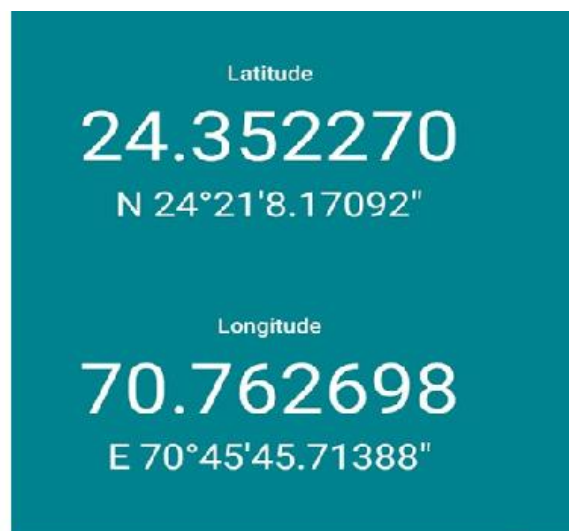


Fig 02: GPS coordinates of sample collection points

2.2 Preparation of extracts

100 g powder of each sample was soaked in 500 mL of 98% methanol (1:5 w/v) for a week. After homogenization of powder in solvent, sonicated by Sonicator, to disturb cell membrane and release cellular content after breaking intermolecular interactions. The mixture was filtered by Whatmann filter paper and filtrate was separated from methanol using rotary evaporator Biobase RE 2010D to get extract with the yield of 27.36 %, Finally it was stored in sterile bottles at 4°C.

2.3 Phytochemical analysis

Phytochemical analysis of *Ricinus communis* was determined as follows: Terpenoids: 1 mL extract + 1 mL CHCl_3 + 1 mL conc. H_2SO_4 , Reddish brown color appearance shows presence of Terpenoids. Steroids: 1 mL extract + 1 mL CHCl_3 + 10 drops of acetic anhydride + 5 drops of conc. H_2SO_4 + shake, dark red or dark pink color confirmed the presence of steroids. Saponins: 2 mL of extract + 2 mL of DI water + shaken for 15 minutes, frothing indicated the presence of saponins. Anthraquinone: 1 mL extract + 1 mL of 10 % NH_3 solution shows pink precipitate indicating the presence of Anthraquinone. Alkaloids: 1 mL extract + 1 mL picric acid saturated solution, Yellow precipitation indicates presence of alkaloids. Tannins: 1 mL extract + 2 mL of 5% FeCl_3 , dark blue confirmed presence of tannin is present. Flavonoids: 1 mL extract + 2 mL FeCl_3 solution brown color appeared indicate flavonoids. Phenols: 1 mL extract + FeCl_3 , Bluish color indicates the presence of phenol (Gayathri & Kibruba, 2014).

Result and Discussion

All test is summarized in table No. 01. Result the reveal the medically active compound in the part of plant. Seed of the plant contain phenol, flavonoids, tanins, alkaloids and steroids. They all are medically important secondary metabolite. Flavonoids and phenolic compounds are powerful antioxidants. Additionally, it contains

some bioactive compounds that can be used to support human health. Phenolic compound and flavonoids are good alternatives for pharmaceutical compound (Tungmunnithum, *et al.*, 2018). Phenol are found in all part (roots, flowers, stem and leaves) This plants. It mean it can use for the purpose of bacterial infection. The antibacterial activity of phenol depends on the moleculler basis. It is effective aganist both bacterial strian and fungal strain (Park, *et al.*, 2001). The antibacterail activity of Glassy polymerrs is slow due to its low moleculler weight Flanovids are found in the seeds and leaves. It inhibits the bacterial growth through inhibition of peptidogly can and ribo somes synthesis, Alternation of the permeability of membrane (Eumkeb, *et al.*, 2012).

Table 1: Phytochemical Analysis of *RicinusCmunis*

Metabolite	Seeds	Leaves	Roots	Stem
Phenolics	+	+	+	+
Flavonoids	+	+	-	-
Tannins	+	+	+	-
Terpenoids	-	-	-	+
Saponins	-	+	+	-
Alkolids	+	-	-	-
Steroid	+	-	-	-
Anthrainone	+	+		-

Sponins is present in roots and leaves of the plant. Its provide in nutrients to maintain metabolic activity (Hassig, *et al.*, 1999). It act as anti tumorigenic agents (Man, *et al.*, 2010). Tannin is present in seed, root and leaves. It has antimicrobial activity as well as it can be used in the treatment of periodontal diseases (Ho, *et al.*, 2001) it antagonistic effect against virus and bacterial strains act as antibio-flim agent againsts *staphylococcus aureus* (Dong, *et al.*, 2018). Many synthetic compounds that harm both humans and animals as well as the environment have been substituted. Alkaloids are the very important compound for the human health. It is use in anti-cancer drugs (Fraga-Corral, *et al.*, 2020) It is used as inhibitor in the treatment of Alzheimer diseases (Tokas & Rook., 2013). Steroids are found in the seeds of the plant. it has its own medical importance it can used in treatment of anti-diabetic and anti-malarial (Roy & Bhradvaja, 2017). It has the ability to treat healing of wound and antiprotozoal (Al-Snafi, 2016). Anthrainone is used in treatmetn of laxatives (Malik & Muller, 2016). It effective antibacterial agents which is able to cause disruption of cell membrane (Chan, *et al.*, 2011). Terpenoids found in the seed of the plant. It is help full in the bio synthesis (Bergman, *et al.*, 2019). Breast canner is one of the leading cause of death in women in through out globe. The fruit extract contain four metabotile Recinine, p-couramic acid, Epigallocatechin and Ricinoleic acid. These compound has cytotoxic and migration inhibiratory effects (Majumder, *et al.*, 2019)

Conclusion

Ricinus Cmunis is native plant of Soth Asia. It has various medicinal application. It contains many phytochemical which are hepl full to inhibit bacterial growth. Due to this reason it protect form the diffrent dieasis. It contains herbal fromulation which act as anti-inflamentory, analgesic, cardiac tonic etc. It is a very important medicinal plant.

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