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Review on Antifungal Activity of Some Medicinal Plant Extract of Amaranthaceae

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Abstract: *A member of the Amaranthaceae family, Amaranthusviridis L. is related to the "Chowlai" plant, a popular weed and wild vegetable. The viridis is composed of many different substances, such as the amino acids lysine, histidine, cystine, arginine, phenylalanine, leucine, isoleucine, methionine, valine, tyrosine, and threonine. Phytochemical screening of leaf extract from Amaranthusviridis Linn. reveals the presence of biologically active components, including triterpenes, alkaloids, cardiac glycosides, flavonoids, tannins, and phenols. Significant anti-inflammatory, antihepatotoxic, anti-ulcer, antiallergic, and antiviral properties are exhibited by certain chemical constituents of Amaranthusviridis Linn. Traditional medicine in India and Nepal uses A. viridis to reduce labor discomfort and serve as an antipyretic. Negritos in the Philippines use the bruised leaves*

Keywords: Amaranthusviridis L.,anti-inflammatory, antihepatotoxic, anti-ulcer, antiallergic, and antiviral.

I. INTRODUCTION

Plant-based medicine is essential for both health and economic reasons. Particularly in developing countries, up to 80% of people globally still rely primarily on herbal remedies for medical care. This is due to the fact that they are less harmful, more generally accepted, and better adapted to human physiology. While there are many benefits that herbal medicines have over allopathic treatments, there are also some disadvantages that make patients less likely to use them. Not surprisingly, 25% of the world's population uses both conventional and herbal medicine to treat a variety of ailments. Herbal remedies are made from plant material or any portion of a plant that is applied topically to treat infections, mend wounds, and enhance general well-being.To treat a cutaneous condition, a formulation containing drug is applied topically via a process called topical medicine distribution. This procedure is used when local skin conditions like fungal infections manifest or when other forms of medication administration—like oral, sublingual, rectal, and parental—are ineffective. Ailments of the system and the surrounding area are frequently treated with topical drugs. The medication is absorbed by the topical administration system and delivered to the site of action, where it carries out its intended therapeutic action. To what extent a drug releases from a topical preparation depends directly on the physiological characteristics of the carrier.Because of its small particle size, the drng diffuses through skin easily and reaches the site of action. The gel will help with the medication's delayed release in addition to retaining the microemulsion in place for an extended period of time. Currently, there are several fungal infections that are becoming more widespread and are a major threat to society. Three harmful fungal species that can result in skin infections are Tineacorporis, Tineapedis, and Tineacapitis. A method such as nanogel allows the medication to be readily absorbed through the skin and start acting on the skin right away.

Drug profile:

Kingdom:	Plantae
Subkingdom:	Viridiplantae
Division:	Tracheophyta
Subdivision:	Spermatophytina
Class:	Magnoliopsida
Superorder:	Caryophyllanae

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Order:	Caryophyllales
Family:	Amaranthaceae
Genus:	*Amaranthus*
Species:	Viridis
Binomial name:	*Amaranthusviridis L*
Synonyms:	• Kannada :Dagglis, Dagglarivesoppu, Cheakeeraesoppu, Keeresoppu. • Bengali :Kantanotya • Gujarathi :Dhimdo • SanskritTanduliya • Hindi : Kantachaulai, Janglichaulai • English : Slender amaranths, greenamaranths • Malayalam :Bayamputih, Bayammunyit.

Fig.1-*Amaranthusviridis l.*

***Amaranthusviridis* Medical Uses:**

The primary source of medications or molecules with modest to considerable pharmacological activity is plants. against enormous illnesses and organisms. phytoconstituents and pharmacological activity are shown.

India and Nepal frequently use Amarathiris L. (Amaranthaceae) as an antipyretic and to reduce labor pains (Kirithikar and Basu, 1986; Mark Turin, 2003). According to Eduardo and Quisumbing (1951), the Negritos of the Philippines directly treat rashes, psoriasis, and eczema with the bruised leaves. Additional traditional uses include laxative, improving appetite, antileprotic, treating respiratory issues, treating eye conditions, treating asthma, treating venereal diseases, acting as a vermifuge, diuretic, antirheumatic, antiulcer, analgesic, and antiemetic (Anonymous, 1988; Agra).

Various pharmacological activities attributed to plant *Amaranthusviridis.*

Antioxidant, Antimicrobial, Anti-inflammatory, Antinociceptive, AntipyreticAntihelmintic Antifungal, Hepatoprotective, AntihyperglycemicHypolipidemicAntidiabeticAntihyperlipidemicAntiviral,Cardio protective

Pharmacological Activities:

Antibacterial and Antioxidant Properties: Because many herbs and spices are high in antioxidants and certain vital minerals, even when taken in moderation, they can have a significant positive effect on health. To extract the active components from leaves , solvents such as pure methanol and water were utilized. The active ingredients from leaves were extracted using methanol and water as solvents, and the resulting yields were 2.4-3.7 percent and 5.4-6.0 percent, respectively. Significant amounts of total flavonoids (18.4 - 5.42 QE, g/100g) and total phenolics (1.03 to 3.64 GAE, g/100g) were present in the extracts. Additionally, the extracts demonstrated the ability to scavenge 1, 1-diphenyl-2-

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picrylhydrazyl (DPPH) radicals (IC50: 14.25 - 83.43 g/ml). Furthermore, among several bacterial and fungal species, the examined extracts showed strong antibacterial activity.

Anti-inflammatory Activity

Amaranthusviridis Linn. leaf isolates' capacity to reduce inflammatory response was studied in aqueous, petroleum ether, and alcoholic media. The experiment's test subjects were male albino rats. The anti-inflammatory properties of the extracts were tested in animal models of carageenan-induced oedema and cotton pellet glaucoma. Doses of 50, 100, and 200 mg/kg of the extracts were consumed. The extracts were compared to the standard medication indomethacin in terms of their anti-inflammatory activity. At a dosage of 200 mg/kg, water and ethanol extracts showed the greatest inhibitory effect. Conversely, the solvent extract exhibits very little inhibitory activity.

Antinociceptive and Antipyretic Activity

An alcoholic extract of Amaranthusviridis Linn. was tested for its antinociceptive and antipyretic effects on rats through the use of a writhing and ethanolic acid-induced hot plate test. The effectiveness of the extract as an antipyretic in mice was evaluated using the yeast-induced pyrexia technique. The laboratory animals were administered the extract at 200 and 400 mg/kg body weight, respectively. At 200 and 400 mg/kg, the alcoholic extract of Amaranthusviridis Linn. may have antinociceptive and antipyretic effects, according to statistical analysis (p0.01).

Hepatoprotective Activity

Wistar rats were used to test Amaranthusviridis Linn. methanol extract's capacity to avert the hepatotoxic effects of paracetamol. Over the course of 15 days, 0.2 and 0.4 g/kg of methanol extracts from Amaranthusviridis Linn. were given to infected animals. Transaminases for glutamate oxaloacetate and glutamate pyruvate, as well as total proteins, bilirubin, and albumin were also measured. Serum glutamate pyruvate transaminase, serum glutamate oxaloacetate transaminase, and bilirubin levels were elevated; however, a methanolic extract of Amaranthusviridis Linn. significantly reduced (P0.001). Albumin and total protein levels were also restored to normal.

Antihyperlipidemic and Antidiabetic Activity

Rats with diabetes that had been induced with alloxan were used to study the antioxidant, antidiabetic, and antihyperlipidemic effects of Amaranthusviridis methanol extract. After an intraperitoneal dose of alloxan (ALX) for five days, albino Wistar rats developed diabetes. Viridisamaranthus Linn. For fifteen days, methanol extracts were taken orally at 0.2 and 0.4 g/kg concentrations. The blood glucose level was measured at zero, one, ten, and fifteen days. Assessments were conducted on total proteins, total cholesterol, total glyceraldehydes, low density lipoprotein cholesterol (LDLC), and high-density lipoprotein cholesterol (HDLC) following a 15-day protocol. Viridisamaranthus Linn. Blood glucose levels and lipid profiles were significantly reduced by methanol extract at dosages of 0.2 and 0.4g/kg.

Antifungal Activity

Research examined the antifungal activity of ethanol, ethyl acetate, dichloromethane, and hexane extracts from Amaranthus against a range of fungal strains. The extract yield was 3.6, 3.2, 2.4, and 2.2 percent (m/m) in each case. A 96-well microplate dilution method was used to determine the minimum inhibitory concentration (MIC) of each extract. Dextrose-Sabouraud agar plates were used to calculate the MFC. Fusariumsolani, which causes fusariosis disease in black pepper, and Colletotrichummusae, which causes black spot disease in bananas, were both eliminated by all extracts of Amaranthusviridis Linn. Dichloromethane extracts had minimum inhibitory doses ranging from 15.6 to 250.0 g m/l, while ethanol, hexane, and ethyl acetate extracts had minimum inhibitory doses ranging from 31.2 to 250.0 g m/l16.

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Antihelminthic Activity

Three plants—Amaranthusspinosus, Amaranthusviridis, and—were examined for their antihelminthic properties.Ground worms, Amaranthuscaudatus. At different concentration levels (10, 20, 30, 40, 60, 80, and 100 mg/ml), methanolic extracts of these plants showed dose-dependent vermicidal activities17.

Presenting various chemical constituents of plant ***AmaranthusviridisL.***

Chemical Compound	Parts
Tannin	Leaves
Resin	Leaves
Reducing Sugar	Leaves
Phlobatannins	Leaves
Flavonoids	Leaves
Cardiac glycosides	Leaves/seeds
Protein	Leaves
Linoleic acid	Leaves
α- Linoleic acid	Leaves
Iron	Leaves
Magnesium	Leaves
Calcium	Leaves
Zinc	Leaves
Amasterol	Root
Saponins	Seeds
Pentatriacontane	Seeds
Hexatriacontane	Seeds
Triacontane	Seeds
6-Pentatriacontane	Seeds
Hentriacontane	Seeds
Ecdysterone	Seeds
Oxalic acid Wild edible	plants
Carotenoids Wild edible	plants
β-Carotene	Leaves

II. CONCLUSION

We go over the Amaranthusviridis (L) material that was previously provided in order to compile data on pharmacology, phytochemistry, geomorphology, and ethnomedicine. It is likely that the plant has many uses in the treatment of various illnesses because it has been associated with numerous pharmacological activities. It has been noted that this plant contains a wide variety of phytoconstituents that are involved in biological processes. On the other hand, reports of neurological problems are unclear. Consequently, the problem is limited to discussing a single compound from Amaranthusviridis Linn. that has the potential to treat neurological disorders in this mini review. Consequently, it is essential to employ these phytoconstituents that can serve as lead molecules in the creation of innovative agents with high.

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