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An ethnoveterinary important plant Terminalia Arjuna

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***Abstract*---**The phytochemical, antioxidant, and antibacterial properties of Terminalia arjuna were investigated using a standard methodology. It's high in secondary metabolites such as alkaloids, glycosides, tannins, saponins, proteins, and steroid hormones. As well as carbs, The methanol extract had a DPPH value of 208.6. Terminalia On Aspergillus fumigatus (20 mm), arjuna at 100 mg/ml demonstrated the most action. More research is required to identify the active principle from the phytopharmaceutical study on several extracts.

***Keywords*---**phytochemical, ethnoveterinary, important plant, Terminalia Arjuna.

Introduction

In India, there are 536.76 million cattle and 851.81 million chickens. The cattle business contributes 4.9 percent of the country's GDP (gross domestic product) and about 28.4% of agricultural GDP. India is the world's largest milk producer. In 2018-2019, 187.75 million MT, 103 billion eggs, and 8.1 million tonnes of meat were produced. India produces the most milk in the world (187.75 million M.T.), as well as 103 billion tonnes of rice. In 2018-2019, eggs and 8.1 million tonnes of meat were produced. Despite considerable growth in the livestock industry, In the cattle industry, animal illnesses are a stumbling block to effective expansion. In addition, zoonotic diseases have a significant impact on the Because of close contact with animals due to traditional husbandry systems with insufficient biosecurity, the risk of zoonotic disease transmission to humans could be high procedures for the biosafetysector's growth.[1]

Zoonotic diseases are global health threats generated by complex interactions between humans, animals, and the environment. There are around 1415 human pathogenic infectious pathogens, with approximately 60% being zoonotic. It's especially alarming because women create 75% of new jobs. Infections are spread by zoonotic animals. In addition, foodborne diseases and antimicrobial resistance. The pressure on the nation's healthcare system and economy has intensified as a result of antimicrobial resistance (AMR). Given the return of old diseases and the emergence of new ones, a One Health approach is essential. It is critical to have a strategy. Because certain emerging diseases employ animals as reservoirs, the disease can spread quickly. Surveillance in animals has the added benefit of protecting humans by detecting, preventing, and detecting, preventing, and detecting, preventing, and detecting, preventing early detection and management of zoonotic diseases. As a result, the current research focuses on India's animal disease surveillance system, operating processes, and inadequacies. It also emphasizes the opportunity to integrate the human illness surveillance system. With a particular emphasis on zoonotic diseases. India has one of the most evolved medical civilizations in the world, with a history reaching back over 5000 years. Since the dawn of time, cattle owners in India have employed traditional medicine based on plant mixes. Traditional categorization, diagnosis, and prevention approach Livestock raisers and healers all across the world utilize and treat common animal ailments. The entire world many of these "ethno veterinarian" techniques are viable substitutes or supplements. When typical, Western-style veterinary treatment is unavailable or not available inappropriate. The fact that India is one of the world's 12 mega-diversity countries is a significant advantage. Containing 8% of world plant genetic resources and a higher share of global plant genetic resources microorganisms.[2]

Ethno-vet procedures have recently increased in popularity since they are less prone to drug resistance and have fewer adverse environmental side effects than traditional treatment. Three key factors are used in traditional healing practices:

1. The use of natural ingredients
2. Make a spiritual appeal
3. Surgical intervention and manipulation

The following natural ingredients were used

Medicinal plants and their derivatives
Earth and minerals that are edible
Animal parts and products
Additional ingredient
Ethno Veterinary Medicine (EVM) benefits and drawbacks:
EVM's benefits include:
It is available for free or at a cost proportional to the animal's worth.
It is simple to use, either topically or orally.

Limitations and drawbacks

Specific approaches are frequently highly localized, limiting the possibilities for their development. The number of people who know about it is restricted. The efficiency of cures varies depending on the season and the application method. Few, if any, have been validated in the same manner that synthetic medications must be confirmed. Some are completely ineffective from a technological standpoint. EVM offers little or no protection against acute viral infections in animals.

Research Materials and Methods

Terminalia arjuna L. (Combretaceae) is a huge evergreen deciduous tree (often known as Arjuna) that grows to a height of 20-25 m and is distributed throughout India. It's a common plant. on the banks of rivers, streams, and dry watercourses, and throughout the majority of the country Indian subcontinent, Uttar Pradesh Himalayan tract, Chota Nagpur, Orissa, West Bengal Punjab, Deccan, and Konkan are three regions in India. Terminaliaarjuna has a silky, thick bark that is grey in colour. Inside, the tint readily comes off in broad flat chunks on the outside surface.[3]

Extraction

100 g of fine coarse powder was crushed and extracted using different solvents such as hexane, chloroform, and methanol in a precise order depending on increasing polarity. For each of the following solvents, the soxhlet hot extraction technique was run for around 15 minutes. 6 hours, or until a colourless solvent was visible in the syphon tube, indicating that the process was complete extraction. A rotary evaporator was used to extract the solvents at reduced pressure and at a controlled temperature. The extracts were dried and stored in a clean glass bottle at a temperature of 4-6 degrees Celsius. till further investigation, for antibacterial screens at 4°C. [4]

Making Inoculums is a Time Consuming Process

As test organisms, Candida albicans, Clostridium septicum, Aspergillus fumigatus, Salmonella enterica, and Brucella abortus were used. Bacterial cultures were created. At 37°C, the plants were cultivated for 12 hours in nutritional broth. Fungi were first produced in potato cultures. 24 hours in

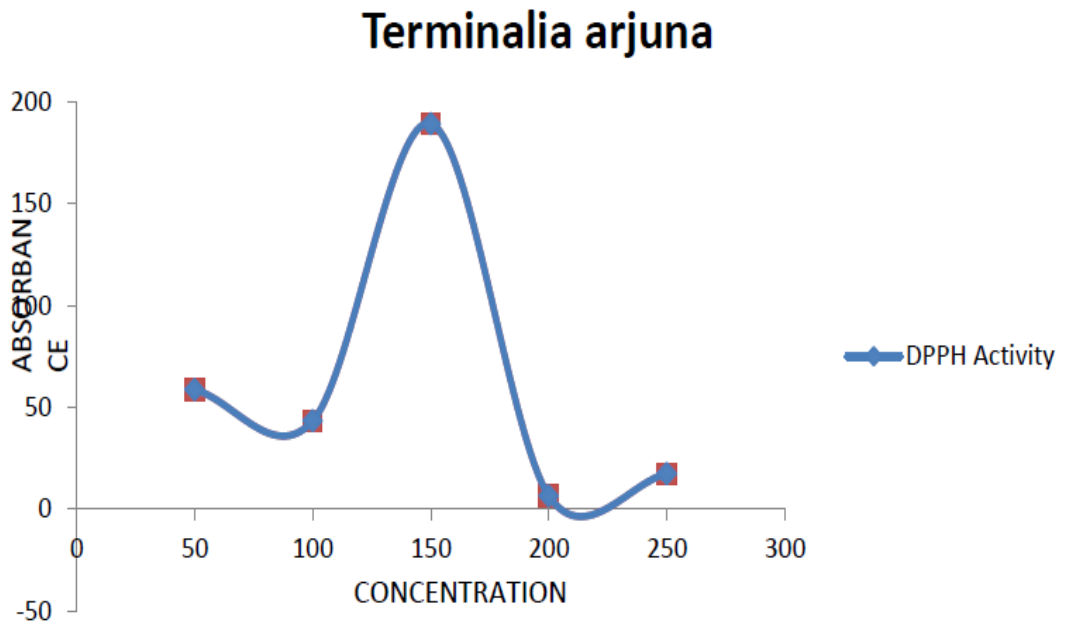
dextrose broth at 25°CMethanol extracts indicated moderate to high activity in all three extracts. carried out tests Antioxidant and antibacterial activities, preliminary phytochemical analysis was carried out in accordance with industry standards.[5]

Result

When comparing the yields of the Soxhlet Extraction and Maceration methods, the Soxhlet Extraction method yielded the most. Terminalia arjuna produced the highest yield (51 percent). Secondary metabolites such as alkaloids, glycosides, tannins, saponins, proteins, steroid hormones, and carbohydrates are abundant. percentage of total The drying loss was (9.92 percent). The ash content of Terminalia arjuna was found to be 4.8 percent. Total The methanol extract has a flavonoids concentration of 129.860.07 mg RUE/g. Total The methanol extract has a phenolic content of 136.86 mg GAE/gm. Values of FRAP The methanol extract showed a value of 119.170.007. [6]

Using a methanol solution of DPPH reagent, the antioxidant activity of several plant extracts was evaluated. The antioxidant activity was measured in terms of inhibition percentage (percent). Antioxidants' influence on DPPH is assumed to be owing to their hydrogen content. ability to donate The methanol extract has a DPPH value of 204.6. At 100 mg/ml, Terminalia arjuna showed the most effectiveness against Aspergillus fumigatus (20 mm) Brucellaabortus (17 mm), Clostridium septicum (16 mm), and Candida albicans follow. Salmonella enterica had the smallest size (15mm) and the least activity (14 mm). [7]

S.NO	Phytochemical test	Terminalia arjuna
1.	Alkaloids	++
2.	Flavanoids	-
3.	Glycosides	+++
4..	Cardiac glycosides	-
5.	Tanins	+++
6.	PHENOLS	+++
7.	steroids	+++
8.	Quniones	-
9.	Protein	+
10.	carbohydrates	+
11.	saponins	+++



S. NO.	Organism	Zone of inhibition					
		200mg/ml	150mg/ml	100mg/ml	MIC	Standard	Control
1.	Brucellaabortus	17	15	13	20	37	6
2.	Clostidrium septicum	16	15	13	20	37	6
3.	Salmonella enterica	14	13	11	25	36	6
4.	aspergillusfumigatus	20	17	16	15	36	6
5.	Candida albicans	15	13	12	20	34	6

Zone of inhibition in mm: 6mm
Border size: 25µl per well
Standard: ciprofloxacin/fluconazole
Control: DMSO

Discussion

The scientific term for traditional animal health care is ethnoveterinary medicine, which incorporates knowledge, skills, methods, practises, and beliefs regarding animal health care.found among a community's members. The knowledge base is distinct not just from that of Not only from one region to the next, but also between and within communities. It was created through trial and error.Through trial and error, as well as planned experimentation As a result, it is less methodical, less formalised, and less structured. In animals, it is not commonly accepted as a valid means of disease control. In a lot of countries, Traditional knowledge has largely gone undocumented; instead, it has been passed down

orally. As a result of an oral tradition that has been passed down through generations, it is in risk of extinction. Traditional healers, on the other hand, have less to offer in terms of treating and controlling epidemic and endemic infectious diseases such as foot and mouth disease, rinderpest, septicemia, anthrax, and acute life-threatening infections. They can deal with a wide range of common disorders, including bacterial diseases. diarrhoea, wounds, colds, worms, coccidiosis, and reproductive problems are all common ailments.[8]

Extraction is a critical step in obtaining phytochemicals from plants. The extraction yield is determined by the solvent, extraction duration and temperature, as well as the chemical composition of the material. The most widely used extraction solvents for Methanol, ethanol, and acetone are phytochemicals that can be used alone or in combination with water. The polarity of various organic solvents have a significant impact on the extraction of a substance. bioactive chemicals in a specific group The yield in this investigation varied depending on the solvent. Methanol> water> ethyl acetate> hexane was the sequence of the solvents. The polarity of the solvents used in the extraction process could explain the variance in yield. As a result, different polarity solvents must be used to separate the polar and nonpolar components. T.arjuna has single leaves that are borne opposite each other and are acute or obtuse at the apex. glabrous Two glands near the base of the petiole are 4-6 inches long and 2-3 inches wide. This plant's leaf characteristics have morphological differences. It blooms in pale yellow. Between March and May, with short auxiliary spikes or a terminal panicle arrangement June; the smooth-skinned, 2.5-5cm fibrous woody fruit is separated into five hard sections.Between September and November, wings develop. [9]

Terminalia arjuna is a magnificent plant with a huge impact on the Ayurvedic medical system. The name 'Arjuna' was employed in the Rigveda to describe either the white colour or one of the gods. Tainted-free fame and a silvery shine. It's possible that this is the first time Arjuna is mentioned. The primary or principle sutra volume of Atharvaveda, Kaushiksutra, states medicine (400300 B.C.). Bhavprakash Nighantu lists other Arjuna synonyms and qualities.

Conclusion

Finally, natural compounds identified from the medicinal plant Terminalia arjuna (and derivatives thereof) have led to the development of a number of clinically useful medicines. Despite everything, drug discovery difficulties from medicinal plants and natural products extracted from them It's safe to assume that medicinal plants will continue to play an important role in the hunt for novel treatments. As a result, the world has seen a rise in scientific and commercial development. Interest in plant-based medications is mostly owing to their enormous economic potential and the fact that they are non-toxic. A high level of cultural acceptance more research is needed to pinpoint the active principle. Different extracts and studies on their phytopharmaceutical properties the study of the consequences of local government. It is projected that the usage of medicinal plants in the veterinary use and against infectious microbes and widely acceptable.

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