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## RECENT ADVANCES IN RESEARCH OF ANTIULCER DRUG OF NATURAL ORIGIN : A REVIEW

**Yogesh Sopan Lawande\*<sup>1</sup>,**

Reshma Subhash Hase<sup>1</sup>, Dhairyasheel Prataprao Jadhav<sup>1</sup>, Trupti Arvind Hyalij<sup>2</sup>

<sup>1</sup>Department of Pharmaceutical Chemistry, Sinhgad Institute of Pharmaceutical Sciences, Lonavala, Pune - 401410, Maharashtra, India.

<sup>2</sup>Department of Pharmacology, Sinhgad Institute of Pharmaceutical Sciences, Lonavala, Pune -401410, Maharashtra, India

### ABSTRACT

*Materia Medica provides lots of information on Folklore practice and tradition aspects of the therapeutically active important products. Herbal Drug are traditionally used in various part of the word to cure different disease. Alternative system of medicine like Ayurveda, Siddha and Unani are very famous medicinal practices in traditional medicine. It provides holistic approach to treat ulcer with success. According to World Health Organization (WHO), many people suffer from different type of ulcers every year. Present review has to focus on variety of medicinal plants which are traditionally used for treatment of ulcers such as Peptic Ulcer, Mouth Ulcer, Esophageal Ulcer, Genital Ulcers etc. A literature detail has kind attention on the antiulcer drug of natural origin with their suggested medicinal part, screening methodology and type of extract used for evaluation and investigation to prove its use. The objective of present review is to compile literature and proved use of certain medicinal plants as antiulcer agent.*

**Keywords:** Antiulcer agent, Herbal Drug, traditional medicine etc

### Correspondence to Author



**YOGESH SOPAN LAWANDE**

Department of Pharmaceutical Chemistry, Sinhgad Institute of Pharmaceutical Sciences, Lonavala, Pune -401410, Maharashtra, India.

**Email:** lawandeys87@gmail.com

### INTRODUCTION

The cause of ulceration in patients is mainly due to hyper secretion of gastric juice and also due to hyper secretion of pepsin. An ulcer is basically an inflamed break in the skin or the mucus membrane lining the alimentary tract. Ulceration occurs when there is a disturbance of the normal equilibrium caused by either enhanced aggression or diminished mucosal resistance. About 19 out of 20

peptic ulcers are duodenal. Gastric ulcers, found in the stomach wall, are less common. The gastric mucosa is continuously exposed to potentially injurious agents such as acid, pepsin, bile acids, food ingredients, bacterial products (*Helicobacter pylori*) and drugs. These agents have been implicated in the pathogenesis of gastric ulcer, including enhanced gastric acid and pepsin secretion, inhibition of prostaglandin synthesis and

cell proliferation growth, diminished gastric blood flow and gastric motility.<sup>1</sup>

The goals of treating peptic ulcer disease are to relieve pain, heal the ulcer and prevent ulcer recurrence. A large number of spices and herbs have been evaluated by various researchers for their antiulcer effects to achieve a favorable outcome. In spite of being one of the well-known medicinal plants used in Indian traditional medicine to treat several ailments, studies pertaining to the pharmacological properties of some medicinal plants are very scarce. We studied the antiulcer activity and acute toxicity of some medicinal plants. Many researchers interpreted that the herbal medicine are used for various ulcerative condition to improve health o sufferer. Present review focus has to on folklore medicinal plants, which are traditionally used as antiulcer agent and enumerated review has attention on their medicinal part, screening methodology and type of extract used to investigate and compile data of recent advances in their research as a antiulcer.

#### Review of Literature

Traditional medicinal practitioners have claimed for centuries that extracts from plant can be effectively used for the evaluation of different type of ulcers. Except for the use of appropriate vaccine for the treatment ulcers caused by infection, some treatments are available today to cure ulceration. It

is not surprise, that a considerable interest has been taken by researcher to examine these number of traditional plant remedies, used for treating ulcers.

In recent year, investigations have been carried out to provide experimental evidence, conforming that many of plant have antiulcer activity.

Material medica provides lots of information ethno medicinal uses of traditional medicinal plants. Among them different plant families mention with their specific part having antiulcer activity.

Among the folklore data, plants species of different families are reported as antiulcer activity and evaluate for their protective mechanism. The aim of present work is to demonstrate ethno medicinal properties of folklore medicinal plants with their experimental evidence and proved used as a antiulcer. Present survey has attention and focus on certain herbs that are screened, evaluated and proved as antiulcer.

#### Plant investigated for its antiulcer activity

Material medica provides lots of information about ethno medicinal herbs, which are valuable as antiulcer agent and its use experimentally evaluated and proved by many researcher for its antiulcer activity. Following compiled data suggested that medicinal plant those are evidently reported for its antiulcer activity (Table.1).

**Table.1** – List of medicinal plant investigated for its antiulcer activity

Sr. no	Plant name	Family	Plant part used	Type of Extract	Methods of Screening
1	<i>Abies pindrow</i> Royle <sup>(7)</sup>	Pinaceae	Leaves	CE, AE and EE extracts	CRS
2	<i>Abutilon indicum</i> <sup>(8)</sup>	Malvaceae	Leaves	Methanolic extract	PL, Acetone & EI
3	<i>Adhatoda zylanica</i> <sup>(9)</sup>	Acanthaceae	Leaves	Water ,AE	EI
4	<i>Aegle marmelos</i> Correa <sup>(7,10)</sup>	Rutaceae	Seeds	Methanolic,Aq-ueous extract	PL, ASP, GU
5	<i>Albizzia lebbeck</i> <sup>(12)</sup>	Mimosaceae	Leaves	EE	PL,EI, Indomethacin induced
7	<i>Allium sativum</i> <sup>(13,14)</sup>	Liliaceae	Bulb	Bulb juice	EI, Indomethacin, Cold RS,CYS induced
8	<i>Alstonia scholaris</i> <sup>(15,16)</sup>	Apocynaceae	Leaves	EE	PL

9	<i>Amomum subulatum</i>	Zingiberaceae	Fruit	Methanolic extract	EI,ASP
10	<i>Anacardium occidentale</i> <sup>(17)</sup>	Anacardiaceae	Leaves	EE	HCl/EI
11	<i>Andrographis paniculata</i> <sup>(13,18)</sup>	Acanthaceae	Leaves	Hydroalcoholic extract	CYS induced duodenal ulcer
12	<i>Annona squamosa</i> <sup>(19)</sup>	Annonaceae	Fruit	EE	CRU, AL, ASP, PL, HA
13	<i>Asparagus acemosus</i> <sup>(7)</sup>	Liliaceae	Root	Fresh juice	PL , CRU
14	<i>Asparagus racemosus</i> <sup>(13,15,21)</sup>	Asparagaceae	Root	Fresh juice	PL, EI .CRU
15	<i>Aspilia africana</i> <sup>(15,22)</sup>	Asteraceae	Leaves	Methanolic extracts	-
16	<i>Azadirachta indica</i> <sup>(7,15,21,23)</sup>	Meliaceae	Stem-Bark	Bark water extract	PL, CRU, Indomethacin, AL, HST, induced
17	<i>Bacopa monniera</i> <sup>(7,21,24,25)</sup>	Scrophulariaceae	Whole plant	Methanolic extract	PL, Stress induced, EI, ASP,AA,CRS
18	<i>Bauhinia racemosa</i> <sup>(26)</sup>	Caesalpiniaceae	Fruit, Stem-Bark	Aqueous, alcoholic	Paracetamol induced
19	<i>Bauhinia variegata</i> <sup>(15,27)</sup>	Fabaceae	Stem- Bark	Aqueous extract	EI, ASP induced, PL
20	<i>Allophylus serratus</i> <sup>(28)</sup>	Sapindaceae	Leaves	EE	CRU, AL, ASP, PL
21	<i>Benincasa hispida</i> <sup>(13,15)</sup>	Cucurbitaceae	Fruit	Methanolic fruit extract	HCl/ EI, Indomethacin-HCl, ASP,PL
22	<i>Bidens pilosa</i> <sup>(21,29)</sup>	Compositae	Aerial parts	EE	AL, PL, Indomethacin induced
23	<i>Bixa orellana</i> <sup>(20)</sup>	Bixaceae.	-	Methanolic extract	-
24	<i>Bupleurum falcatum</i> <sup>(13,31)</sup>	Apiaceae	Roots	-	EI,HCl-Ethanol,PL,Stress induced,
25	<i>Calotropis procera</i> <sup>(13)</sup>	Apocynaceae	Root	Root extract	EI,ASP,PL,Stress induced
26	<i>Camellia sinensis</i> <sup>(7,25,32)</sup>	Theaceae.	Leaves	Hot water extract	ASP , Indomithacin, serotonin,CRS, induced
27	<i>Carica papaya</i> <sup>(15,33)</sup>	Caricaceae	Fruit	Aqueous & Methanolic extract	Indomethacin-induced
27	<i>Centella asiatica</i>	Apiaceae	Whole plant	Fresh juice	CRS.CRU, EI, ASP,

					PL
28	Chinese cinnamon	Lauraceae	Stem bark	Aqueous extract	Phenylbutazone, EI, water immersion stress
29	Cissampelos mucronata	Menispermaceae	Leaves	Methanolic extract	Indomethacin, HIST, stress induced
30	Convolvulus pluricaulis <sup>(7)</sup>	Convolvulaceae	Whole plant	Fresh juice	CRS, EI, ASP and PL
31	Curcuma longa <sup>(13,35)</sup>	Zingiberaceae	Rizomes	EE	PL, EI
32	Davilla rugosa <sup>(37,38)</sup>	Dilleniaceae	Stems	Hydroalcoholic extract	HCl/Ethanol, Immersion-restraint stress & Indomethacin
33	Dalbergia monetaria <sup>(13,36)</sup>	Fabaceae	-	Aqueous extract	PL, EI, HRS
34	Datura fastuosa <sup>(7)</sup>	Solanaceae	Leaves	-	CRS, PL- and ASP
35	Desmodium gagicum <sup>(21)</sup>	Papilionaceae	-	EE	CRU, ASP, PL and AL
36	Dodonaea viscosa <sup>(39)</sup>	Sapindaceae	Leaves	Hexane extract	EI, Indomethacin induced
37	Dombeya buettneri <sup>(13)</sup>	Sterculiaceae.	Leaves	Aqueous extract	EI
38	Eclipta Alba <sup>(13,40)</sup>	Compositae	Whole plant	Methanolic extract	ASP, PL, EI
39	Emblica officinalis <sup>(7,13,21,41,42, 43)</sup>	Euphorbiaceae	Fruit	EE	AL, ASP, CRU, PL, AA
40	Enantia chlorantha <sup>(11,44)</sup>	Annonaceae	Rhizome, Bark	EE	PL, EI
41	Erythroxylum coca <sup>(11)</sup>	Erythroxylaceae	Leaves	-	AL, ASP, PL, AA, Indomethacin
42	Excoecaria agallocha <sup>(45)</sup>	Euphorbiaceae	Bark	Cold water extract	NSAIDS
43	Ficus arnottiana <sup>(21,46)</sup>	Moraceae	Leaves	Methanolic extract	PL, EI
44	Ficus religiosa <sup>(7,47)</sup>	Moraceae	Stem bark	EE	CRS, PL, Indomethacin
45	Flueggea microcarpa <sup>(7)</sup>	Phyllanthaceae	Leaves & roots	-	ASP, CRS, PL,
46	Garcinia cambogia <sup>(21,48)</sup>	Clusiaceae	Fruit	Aqueous extract	Indomethacin
47	Ginkgo biloba <sup>(7,49)</sup>	Ginkgoaceae	-	EE	PL, EI
48	Glycyrrhiza glabra <sup>(7,13,41)</sup>	Fabaceae	Roots	Water decoction	PL, CRS
49	Hemidesmus indicus <sup>(7,21,50, 51)</sup>	Asclepiadaceae	Roots	EE	ASP, PL, Indomethacin
50	Holarrhena	Apocynaceae	Barks	Water decoction	PL, CRS

	antidysenterica <sup>(7)</sup>				
51	Jasminum grandiflorum <sup>(52)</sup>	Oleaceae	Leaves	EE	ASP + PL
52	Kielmeyera coriacea <sup>(15,17)</sup>	Guttiferae	Stem	Water decoction	EI, Indomethacin
53	Larrea divaricata <sup>(17)</sup>	Zygophyllaceae	Leaves	Methanolic extract	HCl induced
54	Lawsonia inermis <sup>(53)</sup>	Lythraceae	Leaves	Aqueous, Chloroform, EE	AI, PL
55	Mammea americana <sup>(17,54)</sup>	Guttiferae	Bark latex	EE, Methanolic, Dichloromethane extract	Indomethacin, PL, EI, HCl induced
56	Matricaria recutita <sup>(13,55)</sup>	Compositae	Flower	Aqueous extract	HCl induced
57	Mikania cordata <sup>(13)</sup>	Asteraceae	Root	AE	ASP, EI, Phenylbutazone induce
58	Momordica charantia <sup>(56,57)</sup>	Cucurbitaceae	Fruits	Methanolic extract	AA, PL, EI, stress induced, Indomethacin, CYS induced
59	Morinda citrifolia <sup>(21,58)</sup>	Rubiaceae	Fruit	Methanolic extract	ASP, AI, PL, CYS, HCl induced
60	Moringa oleifera <sup>(59,60,61)</sup>	Moringaceae	Leaves	Methanolic extract	PL, Ibuprofen induced, Acetylsalicylic acid, serotonin
61	Mucuna pruriens <sup>(41)</sup>	Fabaceae	-	-	EI, PL
62	Musa sapientum <sup>(7,21)</sup>	Scitamineae	Fruit	EE	ASP, EI, Phenylbutazone induce
63	Neurolaena lobata <sup>(13)</sup>	Asteraceae	-	Hydroalcoholic extract	PL
64	Nicotiana tabacum <sup>(11)</sup>	Solanaceae	Leaves	-	ASP
65	Nigella sativa Linn <sup>(13,62)</sup>	Ranunculaceae	Seeds	AE	PL, ASP
66	Ocimum basilicum <sup>(7)</sup>	Lamiaceae	Seeds	-	HIST, ASP, 5HT, Stress induce, EI
67	Ocimum sanctum <sup>(7,13,17,21,41, 64)</sup>	Labiatae	Leaves	EE	ASP, EI, Phenylbutazone, 5HT, PL induce
68	Ocimum Suave <sup>(63)</sup>	Lamiaceae	Leaves	Methanol extract	AA
69	Pachysandra terminalis	Buxaceae	-	-	RSI, WSI
70	Phyllanthus emblica	Euphorbiaceae	Fruits	Water	Indomethacin

					induced
71	Phyllanthus niruri <sup>(13,67)</sup>	Euphorbiaceae	Aerial parts	Methanolic extract	Indomethacin, Ethanol acid-, CRS -induced
72	Panax ginseng <sup>(13,65)</sup>	Araliaceae	Leaves, Root	EE	HCl , EI
73	Piper nigrum <sup>(41,68)</sup>	Piperaceae	Fruit	Petroleum Ether extract	EI,PL
74	Pistacia lentiscus <sup>(13,69)</sup>	Anacardiaceae	Stem	Resin	PL,ASP,Phenylbutazon-e Reserpine, RS + cold stress
75	Plectranthus amboinicus <sup>(15,70)</sup>	Lamiaceae	Whole plant	Ethyl acetate, EE, Aqueous	PL
76	Pluchea indica <sup>(13,71)</sup>	Asteraceae	Root	Methanolic extract	Idoxethacin,EI,Indomith-acin, Acetylsalicylic acid, Serotonin induced
77	Polyalthia Longifolia <sup>(15,72)</sup>	Annonaceae	Leaves	EE, Aqueous extracts	EI,PL,ASP
78	Pongamia pinnata <sup>(7)</sup>	Fabaceae	Seeds, Roots	PE, AE, CE, EE	RS,PL
79	Qualer grandiflora <sup>(17)</sup>	Vochysiaceae	Bark	Hydroalcoholic extract	EI,CRS,Bethanecho I
80	Rauwolfia serpentine <sup>(11)</sup>	Apocynaceae	-	-	Stress induced
81	Rhamnus procumbens <sup>(7)</sup>	Rhamnaceae	Whole plant	-	EI,PL,CRS, HIST
82	Rheum ribes Linn <sup>(73)</sup>	Polygonaceae	Leaves	Methanol extract	EI,PL
83	Scoparia dulcis <sup>(17)</sup>	Scrophulariaceae	Aerial parts	Aqueous extract	EI,Indomithacin induced
84	Shilajit <sup>(7)</sup>	Eurporbiaceae	-	per se effect	EI,PL,CRS, HIST
85	Sophora flavescens <sup>(11)</sup>	Fabaceae	Root	-	EI, PL, Indomithacin
86	Syzygium aromaticum <sup>(74,75)</sup>	Myrtaceae	Flower bud	EE	EI,PL,Indomethacin induced
87	Tectona grandis <sup>(7,13)</sup>	Verbenaceae	Bark	EE	PL, RS,HIST
88	Terminalia chebula	Combretaceae	Fruit	Methanolic extract	EI,PL
89	Terminalia pallida Brandis <sup>(7,21,77,78)</sup>	Combretaceae	Fruit	EE	Indomethacin, HIST, AL
90	Trigonella foenumgraecum <sup>(41,78)</sup>	Fabaceae.	Seeds	Aqueous extract	EI,PL, Water immersion stress and Indomethacin

91	Withania somnifera	Solanaceae	Root	EE	RS
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AE-Alcohol; ASP-Aspirin; CE-Chloroform; CRS-Cold restraint stress; CYS-Cysteamine; DU-Duodenal ulcer; EE-Ethanol; GP-Guinea pig; GU-Gastric ulcer; HIST-Histamine; PE-Petroleum ether; PL-Pylorus ligation; RS-Restraint stress; EI-Ethanol induced, AA-Acetic acid, AL-Alcohol induced

### DISCUSSION

Oldest medicinal systems in the world provides leads to find therapeutically useful compounds from plants. Therefore, ethno medicinal knowledge supported by modern science is necessary to isolate, characterise, and standardise the active constituents from herbal source. This combination of traditional and modern knowledge can produce better antiulcer drugs with fewer side effects. Herbs are widely available in different countries.

The present folklore review has to focus on the certain herbs, which are traditionally mentioned as a antiulcer in a folk literature of Materia Medica and are to be investigated for their antiulcer activity.

Research on natural products often is guided by ethnomedicinal knowledge, and has brought substantial contributions to drug innovation by providing novel chemical structures and/or mechanisms of action . Large number of herbal extracts are used in folk medicine to treat various types of disorders.

This review has wide scope for researcher to compile literature data of antiulcer drug and intense study on evaluated use of certain herbs for their better acceptability in therapeutics.

Hence the review study is concluded that the herbal drug possesses antiulcer activity and it has been proved by different animal models give many links to develop the future trials.

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