

“A Review on Herbal Plants Having Antiinflammatory Activity”

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ABSTRACT: Inflammation is a part of the complex biological response of vascular tissues to harmful stimuli, such as pathogens, damaged cells or irritants. It is characterized by redness, swollen joints, joint pain, its stiffness and loss of joint function. Inflammation is currently treated by NSAIDs. Herbal plants play a vital role in drug discovery. Herbal plants are very useful for human to cure various ailments. In the present article, an attempt has been made to investigate the anti-inflammatory activity of some herbal plants.

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I. INTRODUCTION

Inflammation is a severe response by living tissue to any kind of injury. There can be four primary indicators of inflammation: pain, redness, heat or warmth and swelling. When there is injury to any part of the human body, the arterioles in the encircling tissue dilate. This gives a raised blood circulation towards the area (redness).¹ According to the modern concept, inflammation is a healthy process resulting from some disturbance or disease. Inflammation is a normal response to any noxious stimulus that threatens the host and may vary from localized response to a generalized one.² In other words “Inflammation is the major and complex reaction of the body against infection upon tissue injury.”³ There are mainly two types of inflammation which are following:

Acute inflammation

Acute inflammation may be an initial response of the body to harmful stimuli. It is usually of sudden onset, marked by the classical signs in which vascular and exudative processes predominate.

Chronic inflammation

In chronic inflammation, the inflammatory response is out of proportion resulting in damage to the body. Cyclooxygenase (COX) is the key enzymes in the synthesis of prostaglandins, prostacyclins and thromboxanes which are involved in inflammation, pain and platelet aggregation. It is prolonged and persistent inflammation marked chiefly by new connective tissue formation; it may be a continuation of an acute form or a prolonged low-grade form. Inflammation is the common clinical conditions and rheumatoid arthritis is a chronic debilitation auto immune disorder.^{4,5}

HERBAL PLANTS HAVING ANTIINFLAMMATORY ACTIVITY

Now there is a need for the new safe, potent, nontoxic or less toxic anti-inflammatory drug. Plant medicines are great importance in the primary healthcare in many developing countries. According to World Health Organization (WHO) still about 80% of the world population rely mainly on plant-based drugs.⁶ Herbal plants have been reported to supply natural anti-inflammatory agents that may display minimal side effects are listed below:

S. No.	Plant Name	Family	Plant Part used
1.	<i>Abies pindrow</i> Spach ^{7,8}	Pinaceae	Leaves
2.	<i>Abutilon indicum</i> ⁹	Malvaceae	Leaves
3.	<i>Acacia catechu</i> ¹⁰	Leguminosae	Bark and Stem
4.	<i>Acacia modesta</i> ¹¹	Fabaceae	Leaves
5.	<i>Achillea millefolium</i> ¹²	Asteraceae	Whole Plant
6.	<i>Achyranthes aspera</i> Linn ¹³	Amaranthaceae	Seeds
7.	<i>Aconitum heterophyllum</i> ¹⁴	Ranunculaceae	Roots
8.	<i>Adenantha pavonina</i> ¹⁵	Leguminosae	Leaves
9.	<i>Aegle marmelos</i> ¹⁶	Rutaceae	Root bark
10.	<i>Albizia lebbek</i> ¹⁷	Mimosaceae	Bark
11.	<i>Allium sativum</i> ¹⁸	Liliaceae	Bulbs

12.	<i>Alpinia galanga</i> ¹⁹	Zingiberaceae	Root
13.	<i>Alternanthera sessilis</i> ²⁰	Amarnthaceae	Leaves
14.	<i>Andrographis paniculata</i> ²¹	Acanthaceae	Aerial Plant
15.	<i>Annona squamosa</i> ²²	Annonaceae	Bark
16.	<i>Apium graveolens</i> L. ²³	Umbelliferae	Seeds
17.	<i>Azadirachta indica</i> ²⁴	Meliaceae	Fruit
18.	<i>Bauhinia purpurea</i> ²⁵	Fabaceae	Stem
19.	<i>Berberis vulgaris</i> L. ²⁶	Berberidaceae	Roots
20.	<i>Beta vulgaris</i> L. ²³	Chenopodiaceae	Roots
21.	<i>Bouchea fluminensis</i> ²⁷	Verbenaceae	Leaves
22.	<i>Bridelia ferruginea</i> ²⁸	Euphobiaceae	Aerial Plant
23.	<i>Bryophyllum pinnatum</i> ²⁹	Crassulaceae	Leaves
24.	<i>Calotropis procera</i> ³⁰	Apocynaceae	Latex
25.	<i>Camellia sinensis</i> ^{31, 32}	Theaceae	Leaves, Root
26.	<i>Cassia fistula</i> ³³	Fabaceae	Bark
27.	<i>Cassia occidentalis</i> ³⁴	Caesalpinaceae	Whole Plant
28.	<i>Centaurea cyanus</i> L. ³⁵	Asteraceae	Flowers
29.	<i>Chenopodium botrys</i> L. ²⁶	Chenopodiaceae	Aerial Plant
30.	<i>Chloranthus eretus</i> ³⁶	Chloranthaceae	Leaves
31.	<i>Cinnamomum zeylanicum</i> L. ²³	Lauraceae	Bark
32.	<i>Combretum molle</i> Young ³⁷	Combretaceae	Leaves
33.	<i>Commiphora molmol</i> Engl. ²³	Burseraceae	Whole Plant
34.	<i>Conium maculatum</i> L. ²⁶	Apiaceae	Aerial Plant
35.	<i>Consolida regalis</i> S. F. Grey ²⁶	Ranunculaceae	Aerial Plant
36.	<i>Coptis chinensis</i> Franch ³⁸	Ranunculaceae	Root
37.	<i>Crataeva nurvala</i> ³⁹	Caparidaceae	Stem Bark
38.	<i>Crataeva religiosa</i> Forst. F. ⁴⁰	Caparidaceae	Bark
39.	<i>Crotalaria juncea</i> ⁴¹	Fabaceae	Leaves
40.	<i>Curcuma longa</i> ⁴²	Zingiberaceae	Whole Plant
41.	<i>Cynodon dactylon</i> ⁴³	Poaceae	Whole Plant
42.	<i>Dillenia indica</i> ⁴⁴	Dilleniaceae	Leaves
43.	<i>Dregea volubilis</i> ⁴⁵	Apocynaceae	Leaves
44.	<i>Drimys angustifolia</i> ⁴⁶	Winteraceae	Leaves, Bark
45.	<i>Ecbolium Viride</i> ⁴⁷	Acanthaceae	Root
46.	<i>Emblica officinalis</i> ⁴⁸	Euphorbiaceae	Leaves
47.	<i>Erythropheum lasianthum</i> ³⁹	Caesalpinaceae	Stem Bark
48.	<i>Eucalyptus camaldulensis</i> Dehn ²³	Myrtaceae	Leaves
49.	<i>Felicia muricata</i> (Thunb.) Nees ³⁹	Asteraceae	Stem Bark
50.	<i>Ficus amplissima</i> ⁴⁹	Moraceae	Bark
51.	<i>Ficus bengalensis</i> ⁵⁰	Moraceae	Bark
52.	<i>Foeniculum vulgare</i> ⁵¹	Apiaceae	Fruit
53.	<i>Glaucium flavum</i> Crantz ²⁶	Papaveraceae	Aerial Plant
54.	<i>Gmelina arborea</i> Roxb. ⁵²	Verbenaceae	Leaves
55.	<i>Gochnatia polymorpha</i> (Less.) Cabr. ⁵³	Asteraceae	Leaves
56.	<i>Gridia anthylloides</i> (LE) Gilg. ³⁹	Thymelaeaceae	Leaves
57.	<i>Gynadropsis pentaphylla</i> ⁵⁴	Capparaceae	Stem
58.	<i>Hedera rhombea</i> ⁵⁵	Araliaceae	Whole Plant
59.	<i>Heteromorpha trifoliata</i> (Wendl.) Eckl and Zeyh ³⁹	Apiaceae	Leaves
60.	<i>Hibiscus rosa-sinensis</i> ⁵⁶	Malvaceae	Whole Plant
61.	<i>Holoptelea integrifolia</i> ⁵⁷	Ulmaceae	Leaves
62.	<i>Hygrophila spinosa</i> ⁵⁸	Acanthaceae	Leaves
63.	<i>Hyptis pectinata</i> (L.) Poit. ⁵⁹	Lamiaceae	Leaves
64.	<i>Isopyrum thalictroides</i> L. ²⁶	Ranunculaceae	Root
65.	<i>Jasminum officinale</i> L. ²³	Oleaceae	Flower
66.	<i>Lantana trifolia</i> ⁶⁰	Verbenaceae	Leaves
67.	<i>Latuca sativa</i> L. ²³	Compositae	Seeds

68.	<i>Marrubium peregrinum</i> L. ²⁶	Lamiaceae	Aerial Plant
69.	<i>Mentha piperita</i> L. ²³	Labiatae	Leaves
70.	<i>Moringa oliefera</i> ⁶¹	Moringaceae	Stem Bark
71.	<i>Moringa pterygosperm</i> ⁶²	Moringaceae	Root
72.	<i>Myrtaceae serrata</i> Lam ³⁹	Myricaceae	Root bark
73.	<i>Olea europea</i> L. ³⁹	Oleaceae	Leaves
74.	<i>Pegamum harmala</i> L. ²⁶	Zygophyllaceae	Aerial Plant
75.	<i>Pholiodendron amurense</i> Rupr. ³⁸	Rutaceae	Root
76.	<i>Phyllanthus emblica</i> ⁶³	Phyllanthaceae	Fruit
77.	<i>Piper longum</i> ⁶⁴	Piperaceae	Whole Plant
78.	<i>Piper ovatum</i> ⁶⁵	Piperaceae	Leaves
79.	<i>Pluchea indica</i> ⁶⁶	Asteraceae	Roots
80.	<i>Polyalthia longifolia</i> ⁶⁷	Annonaceae	Leaves
81.	<i>Premna integrifolia</i> Linn ⁵²	Verbenaceae	Leaves
82.	<i>Ptaeroxylon obliquum</i> (Thunb). Radlk. ³⁹	Sapindaceae	Wood
83.	<i>Pterodon pubescens</i> ⁶⁸	Fabaceae	Seeds
84.	<i>Ricinus communis</i> ⁶⁹	Euphorbiaceae	Roots
85.	<i>Roccella montagnei</i> Bel ^{70, 71}	Roccellaceae	Whole Plant
86.	<i>Ruta graveolens</i> L. ²³	Rutaceae	Leaves
87.	<i>Scutellaria baicalensis</i> Georgi ³⁸	Lamiaceae	Root bark
88.	<i>Sida cordifolia</i> Linn. ⁷²	Malvaceae	Whole Plant
89.	<i>Smilax china</i> ⁷³	Smilacaceae	Whole Plant
90.	<i>Swertia chirata</i> ⁷⁴	Gentianaceae	Roots
91.	<i>Tenacetum vulgare</i> ⁷⁵	Asteraceae	Aerial Plant
92.	<i>Tephrosia purpurea</i> ⁷⁶	Fabaceae	Gum
93.	<i>Terminalia arjuna</i> ⁷⁷	Combretaceae	Leaves
94.	<i>Thalictrum minus</i> L. ²⁶	Ranunculaceae	Aerial Plant
95.	<i>Thespesia populnea</i> ⁷⁸	Malvaceae	Leaves
96.	<i>Trachelospermum jasminoides</i> ⁷⁹	Apocynaceae	Leaves
97.	<i>Trichodesma indicum</i> ⁸⁰	Boraginaceae	Root
98.	<i>Vitex negundo</i> ⁸¹	Lamiaceae	Leaves
99.	<i>Zanthoxylum zanthoxyloides</i> ⁸²	Rutaceae	Root
100.	<i>Zingiber officinale</i> ⁸³	Zingiberaceae	Rhizome

II. CONCLUSION

Plants are one of the most important sources of medicines. So far ago, medicinal plants have been used to treat different ailments due to their accessibility, availability, inherited practice, economic feasibility, and perceived efficacy. Large group of herbal plants are used as traditional medicine, which have potential to cure various ailments. This review will help the recent and future researchers in more research work on these valuable herbal plants.

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