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**Shakir Ullah**  
Department of Botany, Govt  
Post Graduate Collage  
Timargara, Lower Dir,  
Pakistan

**Zakir Ullah**  
Department of Botany, Govt  
Post Graduate Collage  
Timargara, Lower Dir,  
Pakistan

**Mohammad Sohail**  
Abdul Wali Khan University,  
Department of Botany Garden  
Campus, Mardan, Pakistan

**Rizwan Ullah**  
Department of Botany, Govt  
Post Graduate Collage  
Timargara, Lower Dir,  
Pakistan

**Mohsin Ihsan**  
Department of Botany,  
Women University of Azad  
Jammu and Kashmir, Bagh  
Pakistan

**Lubna Begum**  
Department of Botany, Govt  
Post Graduate Collage  
Timargara, Lower Dir,  
Pakistan

**Corresponding Author:**  
**Shakir Ullah**  
Department of Botany, Govt  
Post Graduate Collage  
Timargara, Lower Dir,  
Pakistan

## **Traditional herbal medicinal plants of Khyber Pakhtoonkhwa Pakistan using for analgesic, anti-inflammatory, anti-cancer, anti-ulcer and antidiabetic activities**

**Shakir Ullah, Zakir Ullah, Mohammad Sohail, Rizwan Ullah, Mohsin Ihsan and Lubna Begum**

### **Abstract**

The present communication constitutes an updated review on plants with analgesic, anti-inflammatory, anti-cancer, anti-ulcer and antidiabetic activities with special emphasis on those plants found in different parts of Khyber Pakhtoon Khwa Pakistan. This article will be helpful to the common people for their primary healthcare and the researchers for further isolation and characterization of the active chemical constituents responsible for analgesic anti-inflammatory, anti-cancer, anti-ulcer and antidiabetic potential. In the last few years there has been an exponential growth in the field of herbal medicine and these drugs are gaining popularity both in developing and developed countries because of their natural origin and less side effects. Many traditional medicines in use are derived from medicinal plants, minerals and organic matter. The World Health Organization (WHO) has listed 21,000 plants, which are used for medicinal purposes around the world. These work help the people to use the plants is a potential remedies.

**Keywords:** Analgesic, anti-inflammatory, anti-cancer, anti-ulcer and antidiabetic activities Khyber Pakhtoon Khwa, Pakistan

### **Introduction**

Inflammation is the complex biological response of vascular tissues to harmful stimuli including pathogens, irritants, or damaged cells. It is a protective attempt by the organism to remove the injurious stimuli as well as initiate the healing process for the tissue (Singh *et al.*, 2008) [104]. The process of inflammation is necessary in healing of wounds. Inflammation however, if runs unchecked, lead to onset of diseases like vasomotor rhinorrhoea, rheumatoid arthritis and atherosclerosis (Janaranjani *et al.*, 2014). Acute inflammation is characterized by classical signs edema, erythema, pain, heat, and above all, loss of function. The classical signs are triggered by the infiltration of the tissues by serum and white blood corpuscles (leucocytes). Chronic inflammation results in a progressive shift in type of cells, present at site of inflammation. It is characterized by simultaneous destruction and healing of the injured tissue from incidence of inflammation. Fever or pyretic is defined as the elevation of core body temperature above normal; in normal adults, the average oral temperature is 36.98C (98.58F). In oncology practice, a single temperature of more than 38.3 °C (101°F) or three readings (at least 1 hour apart) of more than 38 °C (100.4 °F) are considered significant. Lower temperature elevations in the very young or old and in patients receiving steroids or other immune suppressants are considered abnormal (Mackowiak, 1997). Pain may be define “unpleasant sensory and emotional experience that is caused by actual or potential tissue damage”. The emotional component differs from one person to the other and in the same individual from time to time and it can be classified in several ways, but in therapeutic application into; nociceptive and neuropathic (Koech *et al.*, 2017) [47]. In the body, Sensory nerve endings are generally found in every part of the body such as the blood vessels, internal organs, muscles, joints, and the skin (Rouse *et al.*, 2008). Peptic ulcer diseases encompassing gastric and duodenal ulcer is the most prevalent gastrointestinal disorder. The pathophysiology of peptic ulcer diseases involves an imbalance between offensive (acid, pepsin, and H. pylori) and defensive factors (Mucin, Prostaglandin, Bicarbonate, Nitric oxide and growth factors).

Indian Medicinal plants and their derivatives have been a valuable source of therapeutic agents to treat various disorders including Antiulcer diseases (Manonmani *et al.*, 1995) [55]. Cancer is an abnormal malignant growth of body tissue or cell. A cancerous growth is called a malignant tumor or malignancy. A non-cancerous growth is called benign tumor. The process of cancer metastasis is consisting of series of sequential interrelated steps, each of which is rate limiting. Plants with loaded with chemical with chemo protective activities of some of them are undergoing clinical trial. Inhibition of angiogenesis is a novel process of cancer therapy. The selected and careful use of this plant may

definitely in anti-angiogenic therapy and thus in cancer management (Gupta *et al.*, 2004) [29]. Diabetes mellitus is a clinical syndrome characterized by inappropriate hyperglycemia caused by a relative or absolute deficiency of insulin or by a resistance to the action of insulin at the cellular level. Plant materials which are being used as traditional medicine for the treatment of diabetes are considered one of the good sources for a new drug or a lead to make a new drug. Plant extract or different folk plant preparations are being prescribed by the traditional practitioners and also accepted by the users for diabetes like for any other diseases in many countries.

**Table 1:** List of plants which have analgesic activity

S. No	Botanical Name	Family	Parts used	Activities
1	<i>Manilkara zapota</i>	Sapotaceae	Leaves	Analgesic
2	<i>Scoparia dulcis</i> L.	Scrophulariaceae	whole herb	Analgesic
3	<i>Ficus racemosa</i>	Moraceae	Fruits	Analgesic
4	<i>Allium stracheyi</i>	Liliaceae	Leaves	Analgesic
5	<i>Murraya paniculata</i>	Rutaceae	Bark	Analgesic
6	<i>Bauhinia racemosa</i>	Caesalpiniaceae	Stem bark	Analgesic
7	<i>Clerodendrum phlomidis</i>	Verbanaceae	Stem bark	Analgesic
8	<i>Sida acuta</i>	Malvaceae	whole plant	Analgesic
9	<i>Stylosanthes fruticosa</i>	Papilionaceae	whole plant	Analgesic
10	<i>Toona celiata</i>	Meliaceae	Heart wood	Analgesic
11	<i>Baugainvillea spectabilis</i>	Nyctaginaceae	Leaves	Analgesic
12	<i>Ficus glomerata</i>	Moraceae	Bark	Analgesic
13	<i>Polyalthia longifolia</i>	Annonaceae	Leaves	Analgesic
14	<i>Tribulus terrestris</i>	Zygophyllaceae	Aerial	Analgesic
15	<i>Pimpinella anisum</i>	Umbellifera	Seeds	Analgesic
16	<i>Peganum harmalla</i>	Zygophyllaceae	Whole plant	Analgesic
17	<i>Myrtus communis</i>	Myrtaceae	Leaves	Analgesic
18	<i>Withania somnifera</i>	Solanaceae	Leaves	Analgesic
19	<i>Sinapis arvensis</i>	Solanaceae	Aerial	Analgesic
20	<i>Asphodeline lutea</i>	Asphodelaceae	Aerial	Analgesic
21	<i>Murraya paniculata</i>	Rutaceae	Bark	Analgesic
22	<i>Tridax procumbens</i>	Compositae	Leaves	Analgesic
23	<i>Hibiscus rosa sinensis</i>	Malvaceae	Leaves	Analgesic
24	<i>Pergularia daemia</i>	Asclepiadaceae	Roots	Analgesic
25	<i>Bryonia laciniata</i>	Cucurbitaceae	Whole plant	Analgesic
26	<i>Plumbago zeylanica</i>	Plumbaginaceae	Roots	Analgesic
27	<i>Clerodendrum phlomidis</i>	Verbanaceae	Aerial parts	Analgesic
28	<i>Ficus bengalensis</i>	Moraceae	Leaves	Analgesic
29	<i>Manihot esculenta</i>	Euphorbiaceae	Whole plant	Analgesic
30	<i>Sphaeranthus indicus</i>	Compositae	Whole plant	Analgesic
31	<i>Calotropis Procera</i>	Asclepiadaceae	Latax	Analgesic
32	<i>Xanthium indicum</i>	Compositae	leaves	Analgesic
33	<i>Amaranthus Viridis</i>	Amaranthaceae	Whole plant	Analgesic
34	<i>Marsilea trifolia</i>	Marsilea-ceae	Fresh Leaves	Analgesic
35	<i>Nelumbo nucifera</i>	Nelumbonaceae	seeds	Analgesic
36	<i>Saraca indica</i>	Leguminosae	Leaves	Analgesic
37	<i>Baliospermum montanum</i>	Euphorbiaceae	Roots	Analgesic
38	<i>Kyllinga monocephala</i>	Cyperacea	Leaves	Analgesic
39	<i>Carpolobia lutea</i>	Polygalaceae	Roots	Analgesic

**Table 3:** List of plants which having Anti-inflammatory activity

S. No	Botanical Name	Family	Parts used	Activities
1	<i>Nothospondias Studtii</i>	Simaroubaceae	Leaves	Anti-inflammatory
2	<i>Randia dumetornm</i>	Rubiaceae	Seeds	Anti-inflammatory
3	<i>Asystasia dalzelliana</i>	Acanthaceae	Whole plant	Anti-inflammatory
4	<i>Mangifera indica</i>	Anarcardiaceae	Leaves	Anti-inflammatory
5	<i>Mitragyna parvifolia</i>	Rubiaceae	Fruits	Anti-inflammatory
6	<i>Solanum trilobatum</i>	Solanaceae	root	Anti-inflammatory
7	<i>Rubia cordifolia</i>	Rubiaceae	root	Anti-inflammatory
8	<i>Thesium chinense</i>	Santalaceae	Leaves	Anti-inflammatory
9	<i>Cissampelos pareira</i>	Menispermaceae	Aerial parts	Anti-inflammatory

10	<i>Cissus quadrangularis</i>	Vitaceae	whole plant	Anti-inflammatory
11	<i>Brunfelsia uniflora</i>	Solanaceae	Leaves	Anti-inflammatory
12	<i>Dorstonia brasiliensis</i>	Moraceae	Root	Anti-inflammatory
13	<i>Apuleia Leiocarpa</i>	Legceae	Bark	Anti-inflammatory
14	<i>Marsypianthes chanaedrys</i>	Lamiaceae	Leaves	Anti-inflammatory
15	<i>Casearia sylvestris</i>	Flacurteaceae	Leaves	Anti-inflammatory
16	<i>Trianosperma tayaya</i>	Curcubitaceae	Root	Anti-inflammatory
17	<i>Mikania glomerata</i>	Asteraceae	Leaves	Anti-inflammatory
18	<i>Elephantopus scaber</i>	Asteraceae	Leaves	Anti-inflammatory
19	<i>Cynara scolymus</i>	Asteraceae	Leaves	Anti-inflammatory
20	<i>Chococca brachiata</i>	Rubiaceae	Root	Anti-inflammatory
21	<i>Eucalyptus citriodora</i>	Myrtaceae	esstial oil	Anti-inflammatory
22	<i>Hedyotis puberula</i>	Rubiaceae	whole plant	Anti-inflammatory
23	<i>Tanacetum artemisioides</i>	Asteraceae	whole plant	Anti-inflammatory
24	<i>Kaempferia galangal</i>	Zingiberaceae	rhizome	Anti-inflammatory
25	<i>Cissus rependa</i>	Vitaceae	Root,Stem	Anti-inflammatory
26	<i>Cassia sophera</i>	Caesalpiniaceae	leaves	Anti-inflammatory
27	<i>Oxalis corniculata</i>	Oxalidaceae	whole plant	Anti-inflammatory
28	<i>Tridex procumbens</i>	Asteraceae	leaves	Anti-inflammatory
29	<i>Holarrhena antidysenterica</i>	Apocynaceae	Bark	Anti-inflammatory
30	<i>Celosia argentia</i>	Amaranthaceae	Leaves	Anti-inflammatory
31	<i>Leucas cephalotes</i>	Labiatae	Leaves	Anti-inflammatory
32	<i>Calotropis gigantea</i>	Asclepiadaeaceae	Leaves	Anti-inflammatory
33	<i>Pletranthus amboinicus</i>	Lamiaceae	Leaves	Anti-inflammatory
34	<i>Hibiscus tiliaceus</i>	Malvaceae	Leaves	Anti-inflammatory
35	<i>Amaranthus spinosus</i>	Amaranthaceae	whole plant	Anti-inflammatory
36	<i>Sterculia foetida</i>	Sterculiaceae	seeds	Anti-inflammatory
37	<i>Phyllanthus niruri</i>	Phyllanthaceae	whole plant	Anti-inflammatory
38	<i>Acacia catechu</i>	Leguminosae	Bark & stem	Anti-inflammatory
39	<i>Nyctanthes arbor-tristis</i>	Oleaceae	Bark	Anti-inflammatory
40	<i>Tectona grandis</i>	Vernaceae	Leaves	Anti-inflammatory
41	<i>Butea monosperma</i>	Fabaceae	Leaves	Anti-inflammatory
42	<i>Mitragyna parvifolia</i>	Rubiaceae	fruits	Anti-inflammatory

**Table 3:** List of plants which having Antipyretic activity

S.No	Botanical Name	Family	Parts used	Activities
1	<i>Ocimum sanctum</i>	Labiatae	Leaves	Antipyretic
2	<i>Azadirachta indica</i>	Meliaceae	Leaves	Antipyretic
3	<i>Centella asiatica</i>	Umbellifera	Whole Plant	Antipyretic
4	<i>Emblica officinalis</i>	Euphorbiaceae	fruits	Antipyretic
5	<i>Coriandrum sativum</i>	Umbelliferae	Leaves;Seeds	Antipyretic
6	<i>Asparagus adscendens</i>	Liliaceae	Tuberous roots	Antipyretic
7	<i>Terminalia bellerica</i>	Combretaceae	Fruits	Antipyretic
8	<i>Cinchona officinalis</i>	Rubiaceae	Bark	Antipyretic
9	<i>Abelmoschus esculentus</i>	Malvaceae	seeds	Antipyretic
10	<i>Tamarindus indica</i>	Caesalpiniaceae	fruits	Antipyretic
11	<i>Santalum album</i>	Santalaceae	Volatile oil	Antipyretic
12	<i>Trichosanthes dioica</i>	Combretaceae	fruits	Antipyretic
13	<i>Vitex negundo</i>	Verbenaceae	Roots; Flower	Antipyretic
14	<i>Aconitum ferox</i>	Ranunculaceae	Dried Roots	Antipyretic
15	<i>Alstonia scholaris</i>	Apocynaceae	Leaves; Bark	Antipyretic
16	<i>Cocculus cordifolia</i>	Menispermaceae	Stem; Leaves	Antipyretic
17	<i>Coscinum fenestratum</i>	Menispermaceae	Stem	Antipyretic
18	<i>Daemia extensa</i>	Ascepidaceae	Leaves; Roots	Antipyretic
19	<i>Piper nigrum</i>	Piperaceae	Dried Fruits	Antipyretic
20	<i>Rubia cordifolia</i>	Rubiaceae	Roots	Antipyretic
21	<i>Swertia chirata</i>	Gentianaceae	Whole Herb	Antipyretic
22	<i>Tinospora cardifolia</i>	Menispermaceae	Stem; Root	Antipyretic
23	<i>Allium sativum</i>	Liliaceae	Bulb; oil	Antipyretic
24	<i>Cassia occidentalis</i>	Caesalpiniaceae	Leaves;Seeds	Antipyretic
25	<i>Eclipta erecta</i>	Composita	Roots; Leaves	Antipyretic
26	<i>Cuscuta reflexa</i>	Convolvulacea	Seeds; Stem	Antipyretic
27	<i>Achyranthes aspera</i>	Amarantaceae	Seeds;Root	Antipyretic
28	<i>Anacardium occidentale</i>	Anacardiaceae	Fruit; Seed	Antipyretic
29	<i>Cannibis sativa</i>	Cannabaceae	Leaves	Antipyretic
30	<i>Lantana involucrate</i>	Verbenaceae	Whole Herb	Antipyretic
31	<i>Momordica charantia</i>	Cucurbitaceae	Fruit; Leaves	Antipyretic

32	<i>Bambusa vulgaris</i>	Graminae	Roots; Leaves	Antipyretic
33	<i>Eucalyptus globules</i>	Myrtaceae	Dried leaves	Antipyretic
34	<i>Piper betel</i>	Piperaceae	Leaves	Antipyretic
35	<i>Tecoma stans</i>	Bognoniaceae	Wood; Oil	Antipyretic

**Table 4;** List of plants which having Anti-ulcer activity

S. No	Botanical Name	Family	Parts used	Activities
1	<i>Ocimum sanctum</i>	Labiatae	All parts	Anti-ulcer
2	<i>Allophylus serratus</i>	Sapindaceae	Leaves	Anti-ulcer
3	<i>Desmodium gangeticum</i>	Leguminosae	roots	Anti-ulcer
4	<i>Azadirachta indica</i>	Meliaceae	bark extract	Anti-ulcer
5	<i>Hemidesmus indicus</i>	Asclepiadaceae	extract	Anti-ulcer
6	<i>Asparagus racemosus</i>	Liliaceae	Extract of root	Anti-ulcer
7	<i>Terminalia pallida</i>	Combretaceae	Extract of plant	Anti-ulcer
8	<i>Embllica officinalis</i>	Euphorbiaceae	Fruit Extract	Anti-ulcer
9	<i>Centella asiatica</i>	Apiaceae	Fresh Juice	Anti-ulcer
10	<i>Bacopa monniera</i>	Scrophulariaceae	Fresh Juice	Anti-ulcer
11	<i>Musa sapientum</i>	Scitamineae	Fruit Extract	Anti-ulcer
12	<i>Carica papaya</i>	Caricaceae	seeds	Anti-ulcer
13	<i>Kielmeyera coriacea</i>	guttiferae	steem	Anti-ulcer
14	<i>Garcinia cambogia</i>	clusiaceae	Fruit extract	Anti-ulcer
15	<i>Benincasa hispida</i>	cucurbitaceae	fruit	Anti-ulcer
16	<i>Ficus arnottiana</i>	Moraceae	fruit	Anti-ulcer
17	<i>Alstonia Scholaris</i>	Apocynacea	Whole plant	Anti-ulcer
18	<i>Morinda citrifolia</i>	rubiaceae	fruit	Anti-ulcer
19	<i>Plectranthus amboinicus</i>	Lamiaceae	Whole plant	Anti-ulcer

**Table 5:** List of plants which having Antidiabetic activity

S.No	Botanical Name	Family	Parts used	Activities
1	<i>Trigonella foenum-graecum</i>	Fabaceae	Seeds	Antidiabetic
2	<i>Nephoelepsis tuberosa</i>	Oleandraceae	rhizome	Antidiabetic
3	<i>Costus speciosus</i>	Costaceae	husk	Antidiabetic
4	<i>Plantago ovata</i>	Plantaginaceae	Bulb	Antidiabetic
5	<i>Allium sativum</i>	Alliaceae	Roots	Antidiabetic
6	<i>Hemidesmus indicus</i>	Asclepiadaceae	Bulb	Antidiabetic
7	<i>Allium cepa</i>	Liliaceae	Roots	Antidiabetic
8	<i>Acontium carmichaelii</i>	Ranunculaceae	Fruit	Antidiabetic
9	<i>Capsicum annum</i>	Solanaceae	seeds	Antidiabetic
10	<i>Galega officinalis</i>	Fabaceae	Fruit	Antidiabetic
11	<i>Ganoderma lucidium</i>	Ganodermatacea	Fruit	Antidiabetic
12	<i>Lathyrus japonica</i>	Fabaceae	seeds	Antidiabetic
13	<i>Oriza sativum</i>	Poaceae	Roots	Antidiabetic
14	<i>Tinospora cardifolia</i>	Menispermaceae	Whole plant	Antidiabetic
15	<i>Momordica charantia</i>	Cucurbitaceae	Fruit	Antidiabetic
16	<i>Pterocarpus marsupium</i>	Fabaceae	bark	Antidiabetic
17	<i>Zingiber officinale</i>	Zingiberaceae	rhizome	Antidiabetic
18	<i>Cyamospsis tetragonolobus</i>	Fabaceae	Fruit	Antidiabetic
19	<i>Grewia asiatica</i>	Malvaceae	Fruit	Antidiabetic
20	<i>Acacia arabica</i>	Leguminosae	seeds	Antidiabetic
21	<i>Aegle marmelos</i>	Rutaceae	Root bark	Antidiabetic
22	<i>Aloe vera</i>	Aloaceae	Leaf	Antidiabetic
23	<i>Artemisia pallens</i>	Compositae	aerial parts	Antidiabetic
24	<i>Annona squamosa</i>	Annonaceae	Leaf extracts	Antidiabetic
25	<i>Andrographis paniculata</i>	Acanthaceae	Plant extracts	Antidiabetic
26	<i>Azadirachta indica</i>	Meliaceae	Plant extracts	Antidiabetic
27	<i>Biophytum sensitivum</i>	Oxalidaceae	leaf extracts	Antidiabetic
28	<i>Boerhavia diffusa</i>	Nyctaginaceae	leaf extracts	Antidiabetic
29	<i>Cassia auriculata</i>	Leguminosae	flower extract	Antidiabetic
30	<i>Coccinia indica</i>	Cucurbitaceae	Leaf extract	Antidiabetic
31	<i>Casearia esculenta</i>	Flacourtiaceae	flower extract	Antidiabetic
32	<i>Catharanthus roseus</i>	Apocynaceae	Leaf extract	Antidiabetic
33	<i>Casearia esculenta</i>	Flacourtiaceae	leaf extract	Antidiabetic
34	<i>Catharanthus roseus</i>	Apocynaceae	Fruit extract	Antidiabetic
35	<i>Camellia sinensis</i>	Theaceae	leaf extract	Antidiabetic
36	<i>Ocimum sanctum</i>	Lamiaceae	leaf extract	Antidiabetic
37	<i>Mangifera indica</i>	Anacardiacea	leaf extract	Antidiabetic
38	<i>Punica granatum</i>	Punicaceae	leaf extract	Antidiabetic

39	<i>Swertia chirayita</i>	Gentianaceae	plant extract	Antidiabetic
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**Table 6:** List of plants which having Anticancer activity

S.No	Botanical Name	Family	Parts used	Activities
1	<i>Terminalia arjuna</i>	Combretaceae	Bark	Anticancer
2	<i>Andrographis paniculata</i>	Acanthaceae	Dried leaves	Anticancer
3	<i>Catharanthus roseus</i>	Apocynaceae	Whole plant	Anticancer
4	<i>Ochrosia elliptica</i>	Apocynaceae	Trunk Bark	Anticancer
5	<i>Podophyllum peltatum</i>	Berberidaceae	Dried Rhizome	Anticancer
6	<i>Zingiber officinalis</i>	Zingiberaceae	Rhizome	Anticancer
7	<i>Curcuma longa</i>	Zingiberaceae	Rhizome	Anticancer
8	<i>Vaccinium stamineum</i>	Ericaceae	fruit	Anticancer
9	<i>Calotrophis gigantea</i>	Asclepiadaceae	fruit	Anticancer
10	<i>Cajanus cajan</i>	Fabaceae	Whole plant	Anticancer
11	<i>Butea monosperma</i>	Fabaceae	leaves	Anticancer
12	<i>Bauhinia variegata</i>	Caesalpinaceae	Bark	Anticancer
13	<i>Alium cepa</i>	Liliaceae	Root	Anticancer
14	<i>Aloe barbadensis</i>	Liliaceae	Bulb	Anticancer
15	<i>Cassia auriculata</i>	Caesalpinaceae	leaves	Anticancer
16	<i>Cassia senna</i>	Caesalpinaceae	Root	Anticancer
17	<i>Citrus medica</i>	Rutaceae	Roots	Anticancer
18	<i>Daucus carota</i>	Apiaceae	Roots	Anticancer
19	<i>Jatropha curcas</i>	Euphorbiaceae	Leave. seeds	Anticancer
20	<i>Mimosa pudica</i>	Mimosaceae	Whole plant	Anticancer
21	<i>Nicotiana tabacum</i>	Solanaceae	Leaves	Anticancer
22	<i>Tylopora indica</i>	Asclepiadaceae	Roots. Leaves	Anticancer
23	<i>Vitex trifolia</i>	Verbanaceae	Leaves	Anticancer

## 2. Conclusion

The search for better and safer ways of relieving pain is herbology. It would seem most people agree with the importance of pain relief for these analgesic herbs, some are the best loved and most popular remedies. Some uses for Analgesic herbs are in headaches, toothaches, sore muscles lower back pain and neuralgia. This review opens the way for the research of the active molecules from these plants, their characterization and isolation. These herbal plants have play a key role in analgesic, anti-inflammatory, anti-cancer, anti-ulcer and antidiabetic activities. The listed plants needs the isolation of active compounds from the active parts of the plants like phenol, flavonoids, carbohydrates, tannin, phlobatannins, glycosides and alkaloids etc.

## 3. Acknowledgement

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## 4. References

1. Abhishek M, Vinay G, Verma Satish K, Singh Santosh K, Archana P, Prasad GBKS *et al.* Anti-inflammatory activity of different fractions of *Leucas cephalotes* leaves extract. *IJCPR*. 2011; 2(1):28-32.
2. Akbar S. *Andrographis paniculata*: a review of pharmacological activities and clinical effects. *Alternative Medicine Review*. 2011; 16(1):66-77.
3. Amor EC, Quanicco JP, Perez GG. Analgesic activity of extracts of *Kyllinga monocephala*. *Pharmaceutical biology*. 2009; 47(7):624-627.
4. Amresh G, Zeashan H, RAO V, Singh PN. Prostaglandin mediated anti-inflammatory and analgesic activity of *Cissampelos pareira*. *Acta Pharmaceutica Science*, 2007, 49(2).
5. Aneesh TP, Hisham M, Sekhar S, Madhu M, Deepa TV. International market scenario of traditional Indian herbal drugs–India declining. *International Journal of Green Pharmacy (IJGP)*, 2009, 3(3).
6. Anilkumar M. 10. Ethnomedicinal plants as anti-inflammatory and analgesic agents. *Ethno medicine: A source of complementary therapeutics*, 2010, 267-293.
7. Ankit S, Dhirender K, Khokra SL, Pawan K, Chetan S, Aneja KR. Evaluation of activities of *Mitragyna parvifolia* fruit extract. *Journal of Natural Products (India)*. 2009; 2:49-54.
8. Ankit S, Dhirender K, Khokra SL, Pawan K, Chetan S, Aneja KR. Evaluation of activities of *Mitragyna parvifolia* fruit extract. *Journal of Natural Products (India)*. 2009; 2:49-54.
9. Augusti KT. Hypoglycaemic action of bengalenside, a glucoside isolated from *Ficus bengalensis* Linn, in normal and alloxan diabetic rabbits. *Indian journal of physiology and pharmacology*. 1975; 19(4):218-220.
10. Baral M, Chakraborty S, Chakraborty P. Evaluation of anthelmintic and anti-inflammatory activity of *Amaranthus spinosus* Linn. *International Journal of current pharmaceutical research*, 2010, 2(4).
11. Blaikie C. Critically endangered? Medicinal plant cultivation and the reconfiguration of Sowa Rigpa in Ladakh. *Asian Medicine*. 2009; 5(2):243-272.
12. Borkar VS, Gangurde HH, Gulecha VS, Bhojar PK, Mundada AS. Evaluation of *in vitro* antihelmintic activity of leaves of *Butea monosperma*. *International Journal of phytomedicine*, 2010, 2(1).
13. Bukhari IA, Khan RA, Gilani AUH, Shah AJ, Hussain J, Ahmad VU. The analgesic, anti-inflammatory and calcium antagonist potential of *Tanacetum artemisioides*. *Archives of pharmacal research*. 2007; 30(3):303-312.
14. Chakravarthi PV, Gopakumar N. Evaluation of Analgesic Activity of Lotus seeds (*Nelumbo nucifera*) in Albino Rats. *Veterinary World*, 2009, 2(9).

15. Chattopadhyay RR, Chattopadhyay RN, Nandy AK, Poddar G, Maitra SK. Preliminary report on antihyperglycemic effect of a fraction of fresh leaves of *Azadirachta indica* (Beng. Neem). *Bull Calcutta Sch. Trop Med.* 1987; 35(2):29-33.
16. Chattopadhyay RR, Sarkar SK, Ganguly S, Banerjee RN, Basu TK. Hypoglycemic and antihyperglycemic effect of leaves of *Vinca rosea* linn. *Indian Journal of Physiology and Pharmacology.* 1991; 35(3):145-151.
17. Chude MA, Orisakwe OE, Afonne OJ, Gamaniel KS, Vongtau OH, Obi E. Hypoglycaemic effect of the aqueous extract of *Boerhavia diffusa* leaves. *Indian Journal of Pharmacology.* 2001; 33(3):215.
18. Dalal S, Zhukovsky DS. Pathophysiology and management of fever. *J Support Oncol.* 2006; 4(1):9-16.
19. Das A. Analgesic and antidiarrheal properties of the latex of *Calotropis Procera*. *International Journal of Pharmaceutical & Biological Archive,* 2011, 2(1).
20. Dharmani P, Palit G. Exploring Indian medicinal plants for antiulcer activity. *Indian journal of pharmacology.* 2006; 38(2):95.
21. Dharmani P, Kuchibhotla VK, Maurya R, Srivastava S, Sharma S, Palit G. Evaluation of anti-ulcerogenic and ulcer-healing properties of *Ocimum sanctum* Linn. *Journal of Ethnopharmacology.* 2004; 93(2-3):197-206.
22. Dharmani P, Mishra PK, Maurya R, Chauhan VS, Palit G. *Allophylus serratus*: A plant with potential anti-ulcerogenic activity. *Journal of Ethnopharmacology.* 2005; 99(3):361-366.
23. Dharmani P, Mishra PK, Maurya R, Chauhan VS, Palit G. *Desmodium gangeticum*: A potent anti-ulcer agent, 2005.
24. Garg GP, Nigam SK, Ogle CW. The gastric antiulcer effects of the leaves of the Neem tree. *Planta medica.* 1993; 59(03):215-217.
25. Ghosh D, Thejomoorthy P. Anti-inflammatory and analgesic activities of oleanolic acid 3-/3-glucoside (RDG-1) from *Randia dumetorum* (Rubiaceae). *Indian journal of pharmacology.* 1983; 15(4):331.
26. Gomes A, Vedasiromoni JR, Das M, Sharma RM, Ganguly DK. Anti-hyperglycemic effect of black tea (*Camellia sinensis*) in rat. *Journal of Ethnopharmacology.* 1995; 45(3):223-226.
27. Govind P, Madhuri S. Medicinal plants: better remedy for neoplasm. *Indian drugs.* 2006; 43(11):869-874.
28. Govind P, Madhuri S. Medicinal plants: better remedy for neoplasm. *Indian drugs.* 2006; 43(11):869-874.
29. Gupta M, Mazumder UK, Kumar RS, Kumar TS. Antitumor activity and antioxidant role of *Bauhinia racemosa* against Ehrlich ascites carcinoma in Swiss albino mice. *Acta Pharmacologica Sinica.* 2004; 25:1070-1076.
30. Gupta SK, Prakash J, Srivastava S. Validation of traditional claim of Tulsi, *Ocimum sanctum* Linn. As a medicinal plant, 2002.
31. Hakim ZS, Pande JP, Marval L. Potential antidiabetic agents from plant sources; *Pharmacological Aspects.* *Indian J Natural Product.* 1995; 11(1):3.
32. Harisha CR, Rabinarayan A, Shukla VJ, Chauhan MG. Pharmacognostical evaluation of stem of *Cissus repanda* Vahl, a folk medicine. *International Journal of Research in Ayurveda and Pharmacy (IJRAP).* 2010; 1(1):13-18.
33. Hasan SR, Akter R, Hossain MM, Faruque A, Rana MS. Antinociceptive and CNS depressant activities of *Xanthium indicum* Koen. In mice. *Dhaka University Journal of Pharmaceutical Sciences.* 2009; 8(1):99-101.
34. Hukkeri VI, Nagathan CV, Karadi RV, Patil BS. Antipyretic and wound healing activities of *Moringa oleifera* Lam. in rats. *Indian journal of pharmaceutical sciences.* 2006; 68(1):124.
35. Islam MR, Mannan MA, Kabir MHB, Islam A, Olival KJ. Analgesic, anti-inflammatory and antimicrobial effects of ethanol extracts of mango leaves. *Journal of the Bangladesh Agricultural University.* 2010; 8(2):239-244.
36. Jackson C, Mbagwu H, Jackson I, Ekpe G, Etienam F. Analgesic activities of ethanolic extract of the root of *Carpolobia lutea*. *African journal of Pharmacy and Pharmacology.* 2011; 5(3):367-370.
37. Jagetia GC, Rao SK. Evaluation of the antineoplastic activity of guduchi (*Tinospora cordifolia*) in Ehrlich ascites carcinoma bearing mice. *Biological and Pharmaceutical Bulletin.* 2006; 29(3):460-466.
38. Jeevanantham P, Vincent S, Balasubramaniam A, Jayalakshmi B, Kumar NS. Anti-inflammatory activity of Methanolic Extract of Aerial parts of *Momordica Cymbalaria* Hook F. *International Journal of Pharmaceutical Sciences and Research.* 2011; 2(9):2399.
39. Jeune ML, Kumi-Diaka J, Brown J. Anticancer activities of pomegranate extracts and genistein in human breast cancer cells. *Journal of medicinal food.* 2005; 8(4):469-475.
40. Kadam SH, Dombe SA, Naikwadi PN, Patil SJ, Lokhande VY. Anti-inflammatory activity of *Celosia Argentea* leaves. *International Journal of Drug Formulation & Research.* 2011; 2(1):105-108.
41. Karthikeyan K, Gunasekaran P, Ramamurthy N, Govindasamy S. Anticancer activity of *Ocimum sanctum*. *Pharmaceutical biology.* 1999; 37(4):285-290.
42. Karunanayake EH, Welihinda J, Sirimanne SR, Adorai GS. Oral hypoglycaemic activity of some medicinal plants of Sri Lanka. *Journal of Ethnopharmacology.* 1984; 11(2):223-231.
43. Kashikar VS, Kotkar TT. Indigenous remedies for diabetes mellitus. *Inter. J Pharm. Pharmaceutical Sci.* 2011; 3:22-29.
44. Keen RW, Deacon AC, Delves HT, Moreton JA, Frost PG. Indian herbal remedies for diabetes as a cause of lead poisoning. *Postgraduate medical journal.* 1994; 70(820):113-114.
45. Khan MD. Evaluation of Analgesic and Antipyretic activity of *Marsilea trifolia* Blanco. *International Journal of Scientific and Engineering Research.* 2011; 2(8):1-3.
46. Khushtar M, Kumar V, Javed K, Bhandari U. Protective effect of ginger oil on aspirin and pylorus ligation-induced gastric ulcer model in rats. *Indian journal of pharmaceutical sciences.* 2009; 71(5):554.
47. Koech SC, Ouko RO, Michael NM, Ileri MM, Ngugi MP, Njagi NM. Analgesic activity of dichloromethanolic root extract of *Clusia abyssinica* in Swiss albino mice. *Nat Prod Chem Res.* 2017; 5(255):2.
48. Kokate CK. Purohit AP, Gokhle SB. *Practical pharmacognosy.* Forth edition, Vallabh Prakashan: Pitampura, 2007, 122-126.

49. Kumar BSA, Lakshman K, Jayaveera KKN, Shekar DS, Muragan CSV, Manoj B. Antinociceptive and antipyretic activities of *Amaranthus viridis* Linn in different experimental models. *Avicenna journal of medical biotechnology*. 2009; 1(3):167.
50. Kumar S, Gupta N, Kumar S, Gurjar H. Review on some medicinal plants with antidiabetic and analgesic activity, 2014.
51. Mahendran P, Vanisree AJ, Shyamala Devi CS. The antiulcer activity of *Garcinia cambogia* extract against indomethacin-induced gastric ulcer in rats. *Phytotherapy research*. 2002; 16(1):80-83.
52. Malairajan P, Gopalakrishnan G, Narasimhan S, Veni KJK. Analgesic activity of some Indian medicinal plants. *Journal of Ethnopharmacology*. 2006; 106(3):425-428.
53. Mandal S, Das DN, De K, Ray K, Roy G, Chaudhuri SB *et al.* *Ocimum sanctum* Linn--a study on gastric ulceration and gastric secretion in rats. *Indian journal of physiology and pharmacology*. 1993; 37(1):91-92.
54. Manjamalai A, Narala Y, Haridas A, Grace VB. Antifungal, anti-inflammatory and GC-MS analysis of methanolic extract of *Plectranthus amboinicus* leaf. *International journal of current pharmaceutical research*. 2011; 3(2):129-136.
55. Manonmani S, Vishwanathan VP, Subramanian S, Govindasamy S. Biochemical studies on the antiulcerogenic activity of Cauvery 100, an ayurvedic formulation in experimental ulcers. *Indian journal of Pharmacology*. 1995; 27(2):101.
56. Miladiyah I. Analgesic activity of ethanolic extract of *Manihot esculenta* Crantz leaves in mice. *Universa Medicina*. 2016; 30(1):3-10.
57. Mitchell SA, Ahmad MH. A review of medicinal plant research at the University of the West Indies, Jamaica, 1948-2001. *West Indian Medical Journal*. 2006; 55(4):243-269.
58. Modi RK, Kawadkar M, Sheikh S, Kastwar R, Tiwari G. A review on: Comparative studies on ethanolic extract of root and stem bark of *Ficus carica* for analgesic and anti-inflammatory activities. *International Journal of Pharmacy & Life Sciences*, 2012, 3(8).
59. Moirangthem RS, Gunindro N, Takhellambam DS, Khuraijam SD, Meena N, Rita S. Protective effect of *Phyllanthus fraternus* against cyclophosphamide-induced nephrotoxicity in rats. *International Journal of Basic & Clinical Pharmacology*. 2017; 6(4):984-989.
60. Mukherjee K, Ghosh NC, Datta T. *Coccinia indica* Linn. as potential hypoglycaemic agent. *Indian journal of experimental biology*. 1972; 10(5):347-349.
61. Mukherjee KS, Mukhopadhyay B, Mondal S, Gorai D, Brahmachari G. Triterpenoid constituents of *Borreria articularis*. *Journal of the Chinese Chemical Society*. 2004; 51(1):229-231.
62. Muralidharan P, Srikanth J. Antiulcer activity of *Morinda citrifolia* Linn fruit extract. *J Sci. Res*. 2009; 1(2):345-352.
63. Nagore DH, Ghosh VK, Patil MJ, Wahile AM. *In vitro* antioxidant and *in vivo*-anti-inflammatory activity of *Cassia sophera* Linn. *International Journal of Pharmacy and Pharmaceutical Sciences*. 2010; 2(1):113-21.
64. Nalamolu KR, Nammi S. Antidiabetic and renoprotective effects of the chloroform extract of *Terminalia chebula* Retz. Seeds in streptozotocin-induced diabetic rats. *BMC complementary and alternative medicine*. 2006; 6:17-17.
65. Nammi S, Boini MK, Lodagala SD, Behara RBS. The juice of fresh leaves of *Catharanthus roseus* Linn. Reduces blood glucose in normal and alloxan diabetic rabbits. *BMC complementary and Alternative Medicine*. 2003; 3(1):4.
66. Nanda BK, Jena J, Rath B, Behera B. Anticonvulsant Activity of whole parts of *Sphaeranthus indicus* Linn. Extract in Experimental Mice. *Drug Invent Today*. 2010; 2:202-6.
67. Narender KS, Kumar D, Kumar V. Antinociceptive and anti-inflammatory activity of *Hibiscus tiliaceus* leaves. *International Journal of Pharmacognosy and Phytochemical Research*, 2009, 1(1).
68. Nayak S, Sahai A, Singhai AK. Analgesic activity of the roots of *Baliospermum montanum* Linn. *Ancient science of life*. 2003; 23(2):108.
69. Nikajoo LT. Analgesic activity of aqueous and alcohol root extracts of *Pergularia daemia* (forsk.) chiov. *Int J Pharm Pharm Sci*. 2009; 1(Suppl 1):33-37.
70. Ojewole JAO. Antiinflammatory, analgesic and hypoglycemic effects of *Mangifera indica* Linn. (Anacardiaceae) stem-bark aqueous extract. *Methods and findings in experimental and clinical pharmacology*. 2005; 27(8):547-554.
71. Owoyele BV, Olaleye SB, Oke JM, Elegbe RA. Anti-inflammatory and analgesic activities of *Nothospondias Staudtii*. *Nigerian Journal of Physiological Sciences*. 2004; 19(1):102-105.
72. Pandurangan A, Khosa RL, Hemalatha S. Evaluation of anti-inflammatory and analgesic activity of root extract of *Solanum trilobatum* Linn. *Iranian Journal of Pharmaceutical Research*, 2010, 217-221.
73. Pari L, Satheesh MA. Antidiabetic activity of *Boerhaavia diffusa* L. effect on hepatic key enzymes in experimental diabetes. *Journal of Ethnopharmacology*. 2004; 91(1):109-113.
74. Parveen Z, Deng Y, Saeed M, Dai R, Ahmad W, Yu H. Analgesic and anti-inflammatory activities of *Thesium Chinese* Extracts and major flavonoids Kaepherol and Kaempferol-3-Glucoside. *Yakugako Zaashi*. 2007; 127:1275-1279.
75. Patel A, Patel T, Macwan C, Patel M, Chauhan K, Patel J. Evaluation of Anti-inflammatory and Analgesic activity of roots of *Rubia cordifolia* in rats. *Journal of Pharmaceutical Sciences and Research*. 2010; 2(12):809.
76. Patil SS, Bhide AA, Gorle AM. Antiulcer activity and Ant inflammatory studies on acacia catechu. *Indian drugs*. 2010; 47(2):52-53.
77. Podder MK, Das BN, Saha A, Ahmed M. Analgesic activity of bark of *Murraya paniculata*. *International Journal of Medicine and Medical Sciences*. 2011; 3(4):105-108.
78. Podder MK, Das BN, Saha A, Ahmed M. Analgesic activity of bark of *Murraya paniculata*. *International Journal of Medicine and Medical Sciences*. 2011; 3(4):105-108.
79. Ponnachan PTC, Paulose CS, Panikkar KR. Effect of leaf extract of *Aegle marmelose* in diabetic rats, 1993.
80. Prabhu VV, Nalini G, Chidambaranathan N, Kisan SS. Evaluation of anti-inflammatory and analgesic activity of *Tridax procumbens* Linn against formalin, acetic

- acid and CFA induced pain models. *Int. J Pharm Pharm Sci.* 2011; 3(2):126-30.
81. Prabhu VV, Nalini G, Chidambaranathan N, Kisan SS. Evaluation of anti-inflammatory and analgesic activity of *Tridax procumbens* Linn against formalin, acetic acid and CFA induced pain models. *Int. J Pharm Pharm Sci.* 2011; 3(2):126-30.
  82. Rachchh MA, Jain SM. Gastroprotective effect of *Benincasa hispida* fruit extract. *Indian journal of pharmacology.* 2008; 40(6):271.
  83. Rahmatullah M, Jahan R, Khatun MA, Jahan FI, Azad AK, Bashar ABM *et al.* A pharmacological evaluation of medicinal plants used by folk medicinal practitioners of Station Purbo Para Village of Jamalpur Sadar Upazila in Jamalpur district, Bangladesh. *American Eurasian Journal of Sustainable Agriculture.* 2010; 4:170-195.
  84. Rajasekaran S, Sivagnanam K, Ravi K, Subramanian S. Hypoglycemic effect of Aloe vera gel on streptozotocin-induced diabetes in experimental rats. *Journal of Medicinal food.* 2004; 7(1):61-66.
  85. Ranjan S, Jadon VS, Sharma N, Singh K, Parcha V, Gupta S *et al.* Anti-inflammatory and analgesic potential of leaf extract of *Allium stracheyi*. *Journal of Applied Sciences Research.* 2010; 6(2):139-143.
  86. Rao BK, Rao CA. Hypoglycemic and antihyperglycemic activity of *Syzygium alternifolium* (Wt.) Walp. Seed extracts in normal and diabetic rats. *Phytomedicine.* 2001; 8(2):88-93.
  87. Rao CV, Sairam K, Goel RK. Experimental evaluation of *Bocopa monniera* on rat gastric ulceration and secretion. *Indian Journal of Physiology and Pharmacology.* 2000; 44(4):435-441.
  88. Reddy J, Gnanasekaran D, Vijay D, Ranganathan TV. *In vitro* studies on anti-asthmatic, analgesic and anti convulsant activities of the medicinal plant *Bryonia laciniosa*. Linn. *International Journal of Drug Discovery.* 2010; 2(2):01-10.
  89. Ruppelt BM, Pereira EF, Gonçalves LC, Pereira NA. Pharmacological screening of plants recommended by folk medicine as anti-snake venom: I. Analgesic and anti-inflammatory activities. *Memórias do Instituto Oswaldo Cruz.* 1991; 86:203-205.
  90. Sachdewa ARCHANA, Khemani LD. A preliminary investigation of the possible hypoglycemic activity of *Hibiscus rosa-sinensis*. *Biomedical and environmental sciences: BES.* 1999; 12(3):222-226.
  91. Sairam K, Priyambada S, Aryya NC, Goel RK. Gastrointestinal ulcer protective activity of *Asparagus racemosus*: an experimental, biochemical and histological study. *Journal of Ethnopharmacology.* 2003; 86(1):1-10.
  92. Sairam KCHV, Rao CV, Babu MD, Kumar KV, Agrawal VK, Goel RK. Antiulcerogenic effect of methanolic extract of *Embllica officinalis*: an experimental study. *Journal of Ethnopharmacology.* 2002; 82(1):1-9.
  93. Sakat S, Juvekar AR, Gambhire MN. *In vitro* antioxidant and anti-inflammatory activity of methanol extract of *Oxalis corniculata* Linn. *Int. J Pharm Pharm Sci.* 2010; 2(1):146-55.
  94. Sathisha A, Udupa L, Rathnakar UP, Pal PG, Acharya SD, Shastry R. Anti-inflammatory and Analgesic activity of *Phyllanthus niruri* in Rodent models. *Indian Drugs.* 2009; 46(12):50-53.
  95. Sawarkar A, Jangde CR, Thakre PD, Kadoo R, Shelu S. Analgesic Activity of *Hibiscus rosa sinensis* Linn in Rat. *Veterinary World,* 2009, 2(9).
  96. Saxena AM, Bajpai MB, Murthy PS, Mukherjee SK. Mechanism of blood sugar lowering by a swerchirin-containing hexane fraction (SWI) of *Swertia chirayita*. *Indian journal of experimental biology.* 1993; 31(2):178-181.
  97. Sengupta R, Sheorey SD, Hinge MA. Analgesic and anti-inflammatory plants: an updated review. *International Journal of pharmaceutical sciences Review and Research.* 2012; 12(2):114-119.
  98. Shetty AK, Kumar GS, Sambaiah K, Salimath PV. Effect of bitter melon (*Momordica charantia*) on glycaemic status in streptozotocin induced diabetic rats. *Plant Foods for Human Nutrition.* 2005; 60(3):109-112.
  99. Shibib BA, Khan LA, Rahman R. Hypoglycaemic activity of *Coccinia indica* and *Momordica charantia* in diabetic rats: depression of the *Hepatic gluconeogenic* enzymes glucose-6-phosphatase and fructose-1, 6-bisphosphatase and elevation of both liver and red-cell shunt enzyme glucose-6-phosphate dehydrogenase. *Biochemical Journal.* 1993; 292(1):267-270.
  100. Shirwaikar A, Rajendran K, Kumar CD, Bodla R. Antidiabetic activity of aqueous leaf extract of *Annona squamosa* in streptozotocin–nicotinamide type 2 diabetic rats. *Journal of Ethnopharmacology.* 2004; 91(1):171-175.
  101. Shivhare Y, Upmanyu N, Soni P, Jain P. Evaluation of analgesic activity of *Manilkara zapota* (Leavea). *Eur J Exp Biol.* 2011; 1:14-17.
  102. Silva J, Abebe W, Sousa SM, Duarte VG, Machado MIL, Matos FJA. Analgesic and anti-inflammatory effects of essential oils of *Eucalyptus*. *Journal of Ethnopharmacology.* 2003; 89(2-3):277-283.
  103. Singab ANB, El-Beshbishy HA, Yonekawa M, Nomura T, Fukai T. Hypoglycemic effect of Egyptian *Morus alba* root bark extract: effect on diabetes and lipid peroxidation of streptozotocin-induced diabetic rats. *Journal of Ethnopharmacology.* 2005; 100(3):333-338.
  104. Singh A, Malhotra S, Subban R. Anti-inflammatory and analgesic agents from Indian medicinal plants. *International journal of integrative biology.* 2008; 3(1):57-72.
  105. Singh N, Singh SP, Vrat S, Misra N, Dixit KS, Kohli RP. A study on the anti-diabetic activity of *Coccinia indica* in dogs. *Indian journal of medical sciences.* 1985; 39(2):27.
  106. Sivalokanathan S, Ilayaraja M, Balasubramanian MP. Efficacy of *Terminalia arjuna* (Roxb.) on N-nitrosodiethylamine induced hepatocellular carcinoma in rats, 2005.
  107. Srinivasa U, Neelakanta SA, Rao VJ. Analgesic activity of *Clerodendrum phlomidis* stem bark. *Indain Drugs.* 2010; 47(2):57-59.
  108. Tan ML, Kuroyanagi M, Sulaiman SF, Najimudin N, Muhammad TT. Cytotoxic activities of *Major diterpenoid* constituents of *Andrographis paniculata*. in a panel of human tumor cell lines. *Pharmaceutical biology.* 2005; 43(6):501-508.
  109. Thomas MC. Diuretics, ACE inhibitors and NSAIDs--



- the triple whammy. The Medical Journal of Australia. 2000; 172(4):184-185.
110. Ullah S, Jan G, Gul F, Israr M, Khan S, Khattak M, Bibi H Sher J. Phytochemical analysis, antipyretic, analgesic, anti-inflammatory and antifungal activities of *Pteris quadriaurita* Retz, 2018.
111. VA J, Usman MRM, Salunkhe PS, Gagrani MB. Anti-inflammatory Activity of *Calotropis gigantea* Linn. Leaves Extract on *In-vitro* Models, 2018.
112. Verma A, Jana GK, Chakraborty R, Sen S, Sachan S, Mishra A. Analgesic activity of various leaf extracts of *Saraca indica* Linn. Der. Pharmacia. Lettre. 2010; 2:352-357.
113. Vijay P, Vijayvergia R. Analgesic, anti-inflammatory and antipyretic activity of *Cissus quadrangularis*. J Pharm Sci. 2010 Technol. 2010 2(1):111-8.
114. Vineet M, Sharma SK, Deepak K, Meenu K, Kusum T. A comparative study of analgesic activity of *Plumbago zeylanica* Linn. Callus and root extracts in experimental mice. Research Journal of Pharmaceutical, Biological and Chemical Sciences. 2010; 1(4):830-836.
115. Vittalrao AM, Shanbhag T, Kumari M, Bairy KL, Shenoy S. Evaluation of antiinflammatory and analgesic activities of alcoholic extract of *Kaempferia galanga* in rats. Indian J Physiol Pharmacol. 2011; 55(1):13-24.
116. Wadkar KA, Magdum CS, Patil SS, Naikwade NS. Anti-diabetic potential and Indian medicinal plants. Journal of herbal medicine and toxicology. 2008; 2(1):45-50.
117. WANG MY, Su C. Cancer preventive effect of *Morinda citrifolia* (Noni). Annals of the New York Academy of Sciences. 2001; 2001; 952(1):161-168.
118. Wang W, Zhao Y, Rayburn ER, Hill DL, Wang H, Zhang R. *In vitro* anti-cancer activity and structure-activity relationships of natural products isolated from fruits of *Panax ginseng*. Cancer chemotherapy and pharmacology. 2007; 59(5):589-601.
119. Yadav S, Kulshreshtha M, Goswami M, Rao CV, Sharma V. Elucidation of analgesic and antipyretic activities of *Ficus bengalensis* linn. Leaves in rats. Journal of applied pharmaceutical science. 2011 1(1):38.
120. Zhang XF, Tan BK. Anti-diabetic property of ethanolic extract of *Andrographis paniculata* in streptozotocin-diabetic rats. Acta Pharmacologica Sinica. 2000; 21(12):1157-1164.
121. Zulfiker AHM, Rahman MM, Hossain MK, Hamid K, Mazumder MEH, Rana MS. *In vivo* analgesic activity of ethanolic extracts of two medicinal plants-*Scoparia dulcis* L. and *Ficus racemosa* Linn. Biol Med. 2010; 2(2):42-8.