

A Review on Role of Herbal Drugs Used For the Treatment of Rheumatoid Arthritis.

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ABSTRACT –

Rheumatoid arthritis is an autoimmune inflammatory disease that primarily affects synovial membrane followed by extra articular tissues. it occurs when tissues near joints attacked by immune system. Causes of this disease are due to release of some chemicals and enzymes that start to eat away the cartilage and bones. Some causes are genetic factors , family history ,age , environmental factors ,hormones.

The joints including hands and feets are symmetrically inflammed , resulting in swelling , pain followed by destruction of the joints interior.this disease occurs in between age of 30 to 50 years . mostly found in women with unpredictable clinical course. juvenile rheumatoid arthritis has been reported reported in children's between age of 7 – 15 years of age.

Rheumatoid arthritis can be cured by using herbal sources .by extracting herbal plants phytoconstituents are isolated .

Keywords - phytoconstituents , rheumatoid arthritis ,herbal sources , articular tissues .

INTRODUCTION –

Arthritis means inflammation of joints . rheumatoid arthritis affects 1-3 % of the world population . causes of arthritis are still unknown . inflammation in the joints causes pain, swelling and damage. It leads to deformity of joints .it affects internal organs and other systems in the body. It affects multiple joints in the body. It affects mostly spine,hands , knee , hip and other joints in body. Pro-inflammatory cytokines like tumor necrosis factor-alpha , interleukin (IL)-1 beta. & IL-6 Are significant mediators of the disease perpetuation. Arthritis begins with the pain and swelling in feet and hands and later spreads in other joints.

The cytokines stimulates synovial fibroblasts and chondrocytes in the nearby articular cartilages to secrete enzymes that degrade

proteoglycans and collagen ,leading to tissue destruction .by release of various cytokines and mediators of inflammation ,the synovial starts proliferate and spreading called as pannus .fibrosis is the next stage and lead to loss of mobility of joint this stage is known as Ankylosis. Due to arthritis Synovial membrane becomes thickened and cartilages are eroded . the synovial membrane invades the space between joints and the whole joint is swollen and gives pain on every movement.

There are some herbal drugs can be used for the treatment of arthritis . there are synthetic drugs to cure arthritis but their effect is not permanent . so natural sources are used that can give more effect with less side effects

Symptoms –

Mostly fingers , toes , shoulders and knees are affected.

- 1 .after rest there is pain , swelling , redness , stiffness of the joint.
- 2 . morning stiffness for 2 hrs. 3 . low grade fever.
- 4 . appearance of sjogrens syndrome firm lumps or rheumatoid nodules that grows beneath the skin in places like elbow and hands.
5. Warmth around joints, energy loss , dry eyes and mouth.

DIAGNOSIS –

- 1 . Rheumatoid factor is an antibody in the blood it is linked with RA , 80 % OF People having RA give positive test .
- 2 . Anti cyclic citrullinated peptide antibody test gives better confirmation when combined with RF test.other way of diagnosis include X-rays and magnetic resonance imaging scans.

TREATMENT –

There are some herbal drugs are used to treat rheumatod arthritis as follows ,

1. Bastard guelder -

Biological Name - Premna serratifolia Linn.

Family - Verbenaceae .

Chemical constituents - ethanol extract Bastard guelder.

Uses - anti- arthritic activity .

2. Ginger -

Biological name -Zingiber officinale

Family - Zingiberaceae.

Geographical source - india , taiwan , australia , africa , mauritius , caribbean island .

Chemical constituents -

1. Phytochemical constituents .
2. Sesquiterpenes - zingiberene , bisabolene , zingiberol , curcumene , sesquiphellandrene .
3. Vitamins - vitamin E , vitamin C , vitamin A , thiamine , riboflavin ,niacin pyridoxine .

Parts used - root.

Functions -

it inhibits action of COX -1 and COX -2 .

It suppress Leukotriene biosynthesis by inhibiting 5- lipoxygenase.

Reduces pain because it stops synthesis of prostaglandin .

Used as antiseptic, antifungal , antimicrobial , anticarcinogenic ,antioxidant , anti- inflammatory.

3 . Turmeric -

Biological Name - Curcuma longa L .

Family - Zingiberaceae . **Parts used** - rhizome

Chemical constituents -

Curcuminoids - contains curcumin , demethoxy - curcumin and bisdemethoxy curcumin.

Volatile oils and their major compounds are zingiberone tumerone and alantone .

Uses -

Used as a spices in the food . It acts as an antiseptic .

Used to cure arthritis .

It cures diabetic wound issues . Used for cure of cough .

Acts as anti -inflammatoy agent .

mode of action -

it inhibits action of COX - 2 & Lipoxygenase , reduces production of interlukin IL and cytokines.

4. Dioscorea -

Synonyms - rheumatism root , yam

Biological name - Dioscorea deltoidea , D. composita

Parts used - dried tubers .

Geographical source - india , china , nepal .

Chemical constituents -

Active constituent is diosgenin , a steroidal sapogenin , and its glycosides , smilagenin and epismilagenin , and beta - isomer yammogenin . they contain glycosides .

Uses -

They are used as a corticosteroids. They are used as anti - rheumatic drug . They are used to cure inflammation .

5 . Ginseng -

Synonym - ninjin , pannag , panax .

Biological name - Panax ginseng , P. japonica , P. notoginseng , P. quinquefolium .

Family - Araliaceae .

parts used - dried roots .

Geographical source - korea , china , russia , japan , canada , united states of america , india .

Chemical constituents -

It contains mixture of saponin glycosides belongs to triterpenoid group. Groups are as follows - Panaxosides, ginsenosides , chikusetsusaponin .

Ginsenosides - they contain aglycone dammarol .

Panaxosides - they have oleanolic acid as aglycone .

On the decomposition of panaxosides they give oleanolic acid , panaxadiol and panaxatriol .

Uses -

It acts as an immunomodulator drug . It has sedative properties.

Ginseng is used as an corticosteroid .

Panax ginseng is used in the treatment of rheumatism.

6 . Momordica

Synonym - karela , bitter gourd .

Biological name - Momordica charantia Linn.

Family - Cucurbitaceae . **Parts used** - fresh green fruits . **Chemical constituents** -

this drug contains carbohydrates , mineral matter , ascorbic acid . also they contain glucoside , alkaloids , saponins , mucilage and other contents of karela .

Fruits and leaves contains charantin , a steroidal saponin which shows blood sugar lowering activity . they contain a cathartic principle called momordicin .

Uses -

It acts as a carminative . Karela is stomachic .
It is used to treat rheumatoid arthritis. It is also used treat diabetes mellitus .

7. Shatavari -

Synonyms - shatmul .

Biological name - *Asparagus racemosus* wild .

Family - Liliaceae .

Parts used - dried roots and leaves .

Chemical constituents -

Flowers and fruits contains quercetin , rutin , hyperoside .

Leaves of shatavari contains quercetin and diosgenin .

Roots contains 4 steroid saponins : shatavarin 1 - 4 .

Shatavarin- 1 is the major glycoside with 3 glucose and rhamnose moieties attached to sarsapogenin .

Shatavarin- 4 two glucose and one rhamnose moieties are attached .

Uses -

they are used to treat nervine disorders . Medicinal oil of shatavari used to trat arthritis . It has anti-inflammatory actions .

It is used in the ayurveda treatment in threatened abortion and in safe delievery is justified by uterine blocking activity .

8 . Anantmul -

Synonyms - sariva , indian sarsaparilla , anantmool .

Biological name - *Hemidesmus indicus* Linn.

Family - Asclepladaceae . **Parts used** - dried roots .

Chemical constituents -

Roots contains beta sitosterol , a and b amyryns , lupeol, tannins , and saponins .

It contains volatile oils that contains p-methoxy salicylic aldehyde .

Roots contains hemidesminine , hemidesmin 1 and coumarino-lignoids.

Uses -

It is used to purify blood .

It is used to treat rheumatism . Used to treat urinary disorders . Used to trat pre and post natal care .

Also used to increase lactation in the cows.

9 . Garcinia -

Synonym - vilayati imli .

Biological name - *Garcinia combogia* Desr.

Family - Guttiferae .

Parts used - dried seedless fruits .

Chemical constituents -

fruits contains tartaric acid , hydroxyl citric acid ,

hydroxyl - citric acid - lactone .reducing sugars and phosphoric acid in the form of calcium triphosphate .

Uses -

Decoction of fruits is given in the treatment of rheumatism .

It has antiseptic properties .

It is used to treat digestive disorders .

10 . Guduchi -

Synonyms - amrita , gulvel , tinospora , giloe .

Biological name - *Tinospora cordifolia* .

Family - menispermaceae .

Parts used - dried leaves , stem pieces of woody climber .

Chemical constituents -

It contains tinosporine , tinosporic acid , tinosporol , giloin , giloinin , berberine , syringin , cordifolioside A tinosoridine , tinosporoside , tinosporaside , etc .

Uses -

it is used to treat skin diseases .

It is used to prevent fibrosis . also used to treat rheumatoid arthritis .

It is ued to treat diabetes .

It is used to treat viral hepatitis and jaundice .

11 . Amra -

synonyms - mango , aam

Biological name - *Mangifera indica* Linn.

Family - Anacardiaceae . **Parts used** - dried stem bark . **Chemical constituents -**

Amra contains 10 to 20% tannins, polyphenols , flavonoids , triterpenoids , mangiferin , isomangiferin and gallic acid derivatives .

Tannins as protocatechuic acid and catechin . It also contains mangiferin , alanine ,glycine ,aminobutyric acid ,kinic acid , shikimic acid .

Uses -

1. Bark is used as a astringent , antioxidant. Also used to treat diarrhoea, dysentry .

2. It is used for the treatment of rheumatism.

3. It is used as antidiabetic , antioxidant , antimicrobial, antifungal ,hepatoprotective , hypoglycemic , anti- allergic and anticancer activity .

4. The methanolic extract of amra shows anti- inflammatory activity so used to treat arthritis

12. Gaultheria oil -

Synonyms - betula oil , tea berry oil , sweet birch

oil, oil of wintergreen.

Biological source - Gaultheria procumbens Linn.

Family - Ericaceae.

Parts used - leaves.

Geographical source - Canada and US.

Chemical constituents -

Drug contains 1.5% of oil.

It contains methyl salicylate and gaultherilene.

Uses -

1. Oil of wintergreen is used as a counter irritant and in the treatment of rheumatism.
2. Used as a vermicide against hook worms.
3. Used as a flavouring agent.
4. Used in the perfumes.

13 . Palmarosa oil -

Synonyms - motia- variety, rosha oil, geranium oil.

Biological name - Cymbopogon martini Stapf.

Family - Graminae. **Geographical source** - India.

Parts used - leaves.

Chemical constituents -

It contains geraniol, citronellal dipentene, linalool and terpenes.

Uses -

1. Used for the treatment of rheumatism.
2. Used in the cosmetics.
3. Used for skin disorders.

14 . Rasna -

Synonyms - East India root, Chinese ginger, lesser galangal, galanga.

Biological name - Alpinia officinarum.

Family - Zingiberaceae. **Parts used** - dried rhizomes. **Chemical constituents** -

The green rhizomes contain 0.6% to 1.5% of volatile oil.

The oil contains methyl cinnamate, cineole, camphor and pinene.

It contains resin, oily pungent galangol, alpinol, yellow crystalline substance known as galangin and di-oxyflavanol. The anti-inflammatory triterpene compounds reported are sorghumol and bochmerd.

Uses -

1. It is used in treatment of rheumatism.
2. Used as carminative, stimulant, aromatic.

15 . Arnica -

Synonyms - Arnica flowers, leopard's bane, mountain tobacco, wolf's bane.

Biological source - the dried flower heads of Arnica montana Linn. Belongs to the family Compositae.

Geographical source - Europe, England, Southern Scotland and USA, Canada.

Chemical constituents -

Flowers of Arnica contain 1% of volatile oil, flavonoids, terpenoids etc.

Wolf's bane contains sesquiterpene lactones collectively called helenanolides. Helenanolides contain helanalin; 11, 13 - dehydrohelenalin, epoxyhelenalin. It also contains Arnifolin.

Rhizomes and flowers contain arnidol and faradiol and they act as counter irritants. They contain volatile oil that is present in the flowers, rhizomes and roots, 4-hydroxythymoldimethyl ether is the major constituent with thymol.

Uses -

1. Arnica has osteo-arthritic activity and it helps to cure morning stiffness.
2. It has immunostimulating properties.
3. Arnica is used to treat rheumatism.
4. It acts as an antihyperlipidemic agent.
5. It acts as an antitumor, antifungal, antitumor, anthelmintic.
6. It is not suitable for internal use.
7. Helanine is potent anti-inflammatory and antitumor compound.

16. Daruhaldi -

Synonyms - rasavanti, darvi, berberis, chitra, Indian berbery.

Biological source - dried roots and barks of Berberis

aristata DC belonging to the family Berberidaceae.

Geographical source - Assam, Bihar and Himalaya.

Chemical constituents - it contains alkaloids, stem

bark and root bark contains berberine, barbamine, oxyberberine, palmatine and taxilamine. Roots contain constituents as berberine, barbamine, jatrorrhizine, columbamine and oxyberberine.

Uses -

1. It has anti-biotic actions.
2. It has anti-inflammatory actions.
3. It is used to treat malaria due to its antipyretic effects.
4. It is used to purify blood.
5. It is used as a purgative in children's.
6. It is also used for washing piles and swellings.
7. It is used to treat diarrhoea.

17 . Aconite -

Synonyms - aconite root , bachnag , monkshood .

Biological source - aconite root is the dried root of *Aconitum napellus* Linn. Belonging to the family Ranunculaceae .

Geographical source - germany , spain , switzerland , england , india .

Chemical constituents - It contains diterpene alkaloids like aconitine , hypoaconitineneopelline , napelline , neoline and traces of sparteine and ephedrine .aconitine has toxic actions . the chief constituent of drug is aconitine and is ether - soluble . it contains succinic acid , aconitic acid , starch .

Uses -

1. Used to treat arthritis .
2. It is highly poisonous so used in the form of liniments externally .
3. It is used as a cardiac depressant .
4. Its use is restricted in the homeopathy medicines .

18 Ashok

Synonyms - osaka .

Biological name - *Saraca asoca* Roxb.

Family - Caesalpiniaceae .

Chemical constituents -

Preliminary phytochemical methanolic and ethanolic extracts indicate the presence of tannins , carbohydrates , flavonoid , saponin , glycosides , proteins and steroids.

Uses -

1. It is used to treat rheumatism .
2. It is used as an anti-tumour drug .
3. It acts as an anti- estrogenic .
4. Spasmogenic , uterotonic , anti-bacterial , anti-implantation etc .

19 .Ashwagandha -

Synonyms- winter cherry , indian ginseng , withania root.

Biological name - *Withania somnifera* Linn.

Family - Solanaceae .

Parts used - dried roots and stem bases .

Geographical source - rajasthan , punjab , UP , gujrat , maharashtra , MP , haryana .

Chemical constituents - main constituents are alkaloids and steroidal lactones .

Withanine is the major constituent . other alkaloids

contains somniferine , somnine , somniferinine , withanine , pseudo- withanine , tropine , pseudo tropineanaferine and anahydrine .

, 3-alpha- gloyloxytropene, choline , cuscohygrine , isopelletierine .

Uses -

1. It is used to cure nervine disorders .
2. It is used to cure skin diseases.
3. Ashwagandha is used in the treatment of rheumatism .
4. It has sedative effects.

20. Black pepper -

Synonyms - pepper

Biological name - *Actaea racemosa* Linn.

Family - Ranunculaceae.

Geographical source - south india , indonesia , brazil,malasiya , shrilanka .

Chemical constituents - it contains alkaloids as piperine , volatile oil , pungent resins , piperidine and starch .

Uses -

1. It increases secretion of gastric juices .
2. Use to cure rheumatism symptoms.

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