

Anti-inflammatory Role of Ayurvedic Medicinal Plants- A Review**Dr. Kiran Dnyaneshwar Gorule,**

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Email ID- drkirangorule@gmail.com**Introduction**

Inflammation is defence response of our body and hazardous stimuli such as allergens and/or injury to the tissues, on the other hand, uncontrolled inflammatory response to the main cause of a vast continuum of disorders including allergies, cardiovascular dysfunctions, metabolic syndrome, cancer & autoimmune diseases. There are various medicines for controlling and suppressing inflammation steroids, nonsteroid anti-inflammatory drugs, immunosuppressants are used which are having some adverse effects. Thus we need natural anti-inflammatory medicines to achieve greater pharmacological effects and having lower adverse effects. Herbal medicines are having anti-inflammatory effects with minimum adverse effects. In this review article, we are discussing about medicinal plants having most clinical evidence of their anti-inflammatory effects.

Ayurvedic Anti-inflammatory medicines

In classical Ayurvedic texts Anti-inflammatory drugs are classified as "shothahar" medicines. Many formulations are described in Ayurvedic texts in the context of Anti-inflammatory medicines. The very common medicines are- Erand, Haridra, Ardraka, Guggulu, Nirgundi, rason, Gandhprasarani, Agnimath etc.

Erand:- *Ricinus communis* is an Indian indigenous plant. The important chemical composition are present in the seed and leaves and are Ricinine, Lupeol, Hydrocyanic acid and Tocopherols. Anti-inflammatory effects of root extracts investigated against carrageenin, 5HT, dextran, bradykinin and PGE1 induced rat hind paw oedema. Extract (0.15g/kg) given orally two hours before injection of above phlogestic agents exhibited

significant anti-inflammatory activity against all the agents except PGE1. (Ind.J.Pharmacol,1990, 22,239).

The crude alcoholic extract of root (100mg/100gm) showed 72.27% inhibition of carrageenin -induced rat paw oedema.

The fraction II of the crude alcoholic extract (10mg/100gm) produced 65.12% inhibition. Acetyl salicylic acid showed 62.1% inhibition when used in the dose of 30mg/100mg. (Sharma et.al, 1969)

Haridra:- *Curcuma longa*, common name is Turmeric in English, is an Indian indigenous plant. The most important secondary metabolic of *C.longa* is curcumin, which is responsible for the anti-inflammatory effect of this plant.

Many clinical trials have been done for proving the anti-inflammatory effect of curcumin. Their results suggest that curcumin can be effective in improving inflammation of rheumatoid arthritis (R.A) and reducing clinical manifestation of RA, such as joint swelling and morning stiffness in comparison with phenylbutazone which is used as a positive control.

Its anti-inflammatory activity is investigated with reference to the inhibition of activated proteases responsible for acute inflammatory processes. The volatile oil of the plant was found to inhibit trypsin as well as hyaluronidase enzymes. (Tripathi et al, 1973). The anti-inflammatory effect of volatile oil has been found to be greater than that of hydrocortisone. (Katare,1974)

Guggulu:- *comiphora mu kul*, it is introduced as a well known "Dhupan dravya" in classical Ayurvedic Texts. It was used for the treatment of diseases of cattle. Major chemical constituents are z- guggulsterone, E- guggulsterone, mukulol, guggullignans I & II, oleoresins.

Oleorwsin was found to be highly potent antiinflammatory agent, as compared to hydrocortisone and butazoladin against Brownlee’s for maldehyde induced arthritis in albino rats. (Gujral et al, 1960)

- The crude aqueous extract of oleo-gum-resin was found to supress acute rat paw oedema induced by carrageenin. In adjuvant arthritis, the extract suppressed the secondary lesions and is compared to be more effective than Betamethasone (Satyavathi et. al; 1969 a)
- The steroidal compound isolated from PE extract possessed significant anti-inflammatory activity on carrageenin-induced rat-paw oedema (Arora et al; 1971, 1972)

Gandhaprasarini;- Paederia foetida, is a non-classical herb introduced in ancient medical texts. Major chemicals present in this plats are Asperuloside, paedrsoic acid, paederoside, valine, tyrosine, carotene, histidine.

- Plant extract of Gandhaprasarini showed anti-inflammatory activity stronger than that of acetylsalicyclic acid and weaker than that of hydrocortisone (Ind J Med. Sci. 1973,27,231)
- The decoction was given orally in a daily dose of 1.5ml (representing 0.75g of dry powder of the drug) for 10 days, showed significant anti-inflammatory action against formal dehyde- induced arthritis in non-adrenalectomized albino rats.(Chaturvedi & Singh, 1965)
- Against carrageenin induced rat paw oedema, decoction of wholw plant showed a mild degree of anti-inflammatory activity. (Sharma & Singh, 1965).

Nirgundi;- Vitex nirgundo ,is used widely. This is one of the important Ayurvedic medicinal plant. It contains phenol, ducitol, alkaloid- vitricine, aucubin, camphene, angoside, casticin.

the ethyl acetate extract at a dose of 50mg/kg orally produced definite anti-inflammatory effect against carrageenin,5HT and bradykinin induced oedema. (CCRIMH, 1997-78).50gm of coarse leaf powder was boiled in 800ml of distilled water till the volume is reduced to 100ml and was filtered through a thick cloth. After cooling 1.5ml of

total watery extract was administered to albino rats which were induced with arthritis by using formaldehyde. Significant anti arthritic activity is shown by Nirgundi. (Singh & Chaturvedi 1996).

Rason;- Allum sutivam, commonly known as Garlic. It is used in daily life as a important spice. It is cultivated throughout India. It contains Allin, carbohydrates, amino acids, thioglycosides, prostoglanding, allylmethyselenide.

- The alcoholic extract of bubs showed anti-inflammatory activity against carrageenin induced rat hind paw oedema in albino rats. (Bhakuni et al , 1969).
- Alliin was found to be useful clinically in the treatment of RA 32 patients had relief from symptoms. A change in mucoprotein levels and ESR was observed . (Sreenivasa Murthy et al 1962).
- Allisatin (200mg/100gm/day) showed slight inhibitsry activity against formalin induced arthritis. (Prasad et al, 1966).
- Extracts of leaves, stem & bulb produced a stimulating followed by inhibitory effect on the uterus of non-pregnant gunia pogs, conversely it produced stimulating effect on uterus of gunia pigs. (Jpn. J. Pharmacol. 1979 23, 1979).

Devdaru;- Cedrus decodara, is one of the important Ayurvedic medicinal plant described in classical texts. The point is found in all over in India. It contains Deodarin, toxifolin , atlantone, sesquiterpenes.

The alcoholic extract of stem was found to have anti-cancer activity against human epidermal carcinoma of the nasopharynx in tissue culture. (Dhar el. at, 1968).

Stem, bark extract showed significant anti-inflammatory activity in rat. (Ind. J.Pharmacol :334, 1973.)

Agnimatha;- Clerodendrum phlomids, is an important plant during vedic period where in its stembark were used to produced fire. Major chemicals present in this plant are Pectolinsrigenin, apigenin, clerodin, clerodendrin, cerolic acid, raffinose, luteolin, botulin, ganiarine.

The aqueous extract of leaves administrated I.M was found effective in reducing the oedema of formalin induced arthritis in rats. External application of alcoholic extracts of the leaf also reduced the oedema. (Krishmurthy et al, 1972).

A compound isolated from root bark was active against gram positive organisms. (Naturwiss, 1964,51,484).

Conclusion:-

Herbal medicine is one of the most important aspect of complementary medicines. There are many studies which have been asserted the role of several herbs in inflammation remission. We introduce some herbs which their anti-inflammatory effects have been evaluated in clinical and experimental studies.

Erand, is the most common medicinal plant used. Root extracts of erand shows anti-inflammatory action against all agents except PGE 1. Curcuma longa which is widely used a cosmeceutical agent also shows a very good anti-inflammatory activity. The results of clinical trials of Haridra suggests that, it is effective in improving inflammation of R.A & reducing clinical manifestation of R.A. in the results obtained from the studies of Guggulu, it is found that guggulu is more effective than betamethasone.

From this review we come to know that many Ayurvedic plants possesses Anti-inflammatory activity, and they can be used with minimum risk.

References:-

1. Dr. J.L.N Sastry- Dravyagun Vigyan, Erand, 483, Chaukhamba Orientalia, Varanasi, 2015.
2. Dr J.L.N Sastry- Dravyagun Vigyan, Guggulu, 113, Chaukhamba Orientalia, Varanasi, 2015.
3. Dr J.L.N Sastry- Dravyagun Vigyan, Gandhprasarini, 286, Chaukhamba Orientalia, Varanasi, 2015.
4. Dr J.L.N Sastry- Dravyagun Vigyan, Nirgundi, 411, Chaukhamba Orientalia, Varanasi, 2015.
5. Dr J.L.N Sastry- Dravyagun Vigyan, Rason, 531, Chaukhamba Orientalia, Varanasi, 2015.
6. A.S Bagad, JA Joseph, N.Bhaskaran, "Comparative evaluation of anti-inflammatory activity of curcuminoids, turmerones and aqueous extract of Curcuma longa", Advances in Pharmacological Sciences, Vol.2013, Article ID805756, 7 pages, 2013.
7. Dr J.L.N Sastry-Dravyagun Vigyan, Devdaru. 507, Chaukhamba Orientalia, Varanasi, 2015.
8. Dr J.L.N Sastry- Dravyagun Vigyan, Agimantha, 418, Chaukhamba Orientalia, Varanasi, 2015.