

An executive summary of the final report of work done on the minor research project of Ms. Bhavya D K entitled "IN VIVO ANTI INFLAMMATORY PROPERTY OF *OPHIORRHIZA RUGOSA* AND ANALYSIS OF BIOMARKER (COX2, PGH, PLA2, TNF A)" sanctioned by UGC, vide sanction letter No. MRP(S)- 1433-MRP/14-15/KAMA002/UGC-SWRO- DATE -04-Feb-15

Phytochemical fractionation of *Ophiorrhiza rugosa* was done and the Chloroform-methanol (CMT) extract was collected. The presence of the phytochemical compounds such as Alkaloids, Steroid-alkaloids, Phenols, Flavonoids, Sapogenins and Antioxidants were detected by chemical method. Inflammation is a common phenomenon and it is a reaction of living tissues towards injury. Steroidal anti-inflammatory agents will lyse and possibly induce the redistribution of lymphocytes, which cause rapid and transient decrease in peripheral blood lymphocyte counts to affect longer term response. Here anti-inflammatory activity was performed by various *in vitro* and *in vivo* methods. Inflammation is a common phenomenon and it is a reaction of living tissues towards injury.

Anti lipoxigenase activity:-Lipoxygenase (EC 1.99.2.1) , originally known as lipoxidase, catalyses the oxidation of fatty acid containing the cis, methylene- interrupted diene system, such as linoleic acid forming the conjugated cis, trans, diene, hydroperoxide. Lipoxygenase play an important role in inflammation. The results obtained from our studies on both the extracts have shown a potential anti-inflammatory activity.

Inhibition of albumin denaturation:-Protein Denaturation is a process in which proteins lose their tertiary structure and secondary structure by application of external stress or compound, such as strong acid or base, a concentrated inorganic salt, an organic solvent or heat. Most biological proteins lose their biological function when denatured. Denaturation of proteins is a well documented cause of inflammation. As part of the investigation on the mechanism of the anti-inflammation activity, ability of plant extract to inhibit protein denaturation was studied. It was effective in inhibiting heat induced albumin denaturation.

The HRBC membrane stabilization has been used as a method to study the invitro anti inflammatory activity because the erythrocyte membrane is analogous to the lysosomal membrane and its stabilization implies that the extract may as well stabilize lysosomal membranes. Stabilization of lysosomal membrane is important in limiting the inflammatory response by preventing the release of lysosomal constituents of activated neutrophil, such as

bactericidal enzymes and proteases, which cause further tissue inflammation and damage upon extra cellular release.

Heat Induced haemolysis : The extract was effective in inhibiting the heat induced haemolysis at different concentrations. The erythrocyte membrane against lysis induced by heat. *O.rugosa* (OR) offered a significant protection against damaging effect of heat solution compare to standards.

Carrageenan-induced inflammation[rat paw edema]:- All compounds exhibit significant anti-inflammatory activity, based on acute study ($p < 0.05$; One way ANOVA, followed by Dunnett's test; Prism software.

All these data prove that the phytochemicals present in the above mentioned source can be exploited for the development of a new therapeutic drug against inflammation.

Date:

Name & Signature

(BHAVYA D K)