5. SUMMARY & CONCLUSION
5.1 SUMMARY
The WHO has defined herbal drugs or the drugs obtained traditionally as compose of curing diseases that have been in fact for hundreds of years, before the development of present or recent times used medicine and still such drugs are used today to cure diseases. The medicinal plants, minerals and organic matters are useful for earlier herbal preparations. The primarily use medicinal plant preparations for therapy compose of traditional medicines or herbal drugs. The herbal medicines or traditional medicines obtained from nations historic places, mountains, forest and civilized society where numbers of peoples are stay. Now a day’s herbal drugs are used for various objects like nutracuticals which are used to hinder disease or nutrition, some drugs are used in improving normal appearance as they give good result and having fewer side effects.

From thousands of years, herbal medicines are used in India and used of herbal medicine will increased worldwide during the last few decades as on basis of available facts or circumstances by rapidly growing global and Indian markets of herbal drugs. Due to high rates of modern medicine peoples are looking towards herbal drugs. More and more people will depend on used of herbal drugs and these directions of using herbal drugs are growing day by day in bigger countries. There is most of place occupy by forest and forest is one of good place were lots of medicinal plants are available in our place. Such medicinal plants have good medicinal values and used as a folk medicine to treat were diseases like fever, cough, pain, headache, bleeding and arthritis.

Such medicines are used to prepare various herbal pharmaceutical products which give better results as compared to modern medicine with less side effects. Billions of medical practitioners in India used traditional medicinal systems for curing of diseases and health related issues. There is more than seven thousand seven hundred fifty manufacturing units are used for development of natural health products and herbal based formulation in India, which require thousand of tones of raw materials annually throughout of India. Regrettably, some peoples are experiencing some negative effects after using herbal drugs. Such effects are increasing day by day. There may be number
of reasons such as purity of drugs are decreases and World Health Organization prepared principles for handling purity of herbal drugs. Also give information about cultivation and collection of herbal drugs. The peoples are lack behind maintaining quality of herbal drugs because interior quality of herbs micro-organism and heavy metals. Giving some training to farmers will definitely help to improve quality of herbal drugs. For checking quality of herbal drugs, there are number of evaluation methods are available. Evaluation methods like physical evaluation which is to check physical parameters of drugs like physical constants like melting point and boiling point, density, refractive index and so many.

The second method is microscopic evaluation where microscopic characters of herbal drugs are studied. The third method is chemical evaluation where chemical characters of plant can be studied such as to check chemical constituents present in to plant that are useful for curing various disease. The forth method is morphological evaluation of drugs where morphological characters of medicinal plants are studied. The morphological characters such as color, odor, shape size of plant parameters can be studied. The fifth method is biological evaluation of drugs where extracts of plant can be studied on animals such as rats, rabbits and other animals to find different pharmacological activities. This all methods of evaluation of medicinal plants are useful methods to check quality and purity of medicinal plants and also mention in guidelines of WHO. This is official book to studied various quality characters of herbal medicinal plants and give benefits lots of people in India and throughout the world to treat various disease with least amount of side effects and with less amount of price.

In some herbal medicinal plants, their number of banned pesticides, microbial contaminated products, chemical toxins and heavy metals cause various problems like kidney damage, paralysis, neural defects and liver damage etc. If herbal drugs are grown under contaminated condition, it will contaminate sources of drugs. Chemical toxins may occur from nonfavourable techniques which are used after harvesting, wrong condition used for storing of herbal drugs or using certain chemicals for treatment of herbal drugs during storage. Such an environmental factors can be controlled by using good source of herbal drugs, good practice related to agriculture and various standard
procedures for operating and producing good quality herbal preparation and products. Using good quality of herbal medicines, give an impact on good quality of herbal preparation and herbal products. Generally, herbal medicines are give valueness on the basis of their odor, color flavor and taste. Unluckily medicinal plants were affected by number of factors. If the herbal are not treated properly then it will result into unpleasantness of foods and also result in serious food diseases and illness.

The herbal drug which is obtained after harvesting and processing may results into contaminated with microorganisms from herbal plants, water, dust, soil, and air. A different variety of microorganisms are found in medicinal herbal plants. These will create lots of risk in maintain quality of drugs and their analysis according to various organization standards. Many of the countries throughout the world set their own limits related to drug dose and such higher limits allow for control of microbial in herbal plants. There are lots of methods are used to control over microbial contamination such as gamma radiation which reduces total aerobic viable cell counts in highly contaminated herbal medicinal drugs and dry herbs. Gamma radiation is always better than ethylene dioxide treatment on herbal medicinal plants as per Food and Environmental Protection. There number substances are used in preparation of herbal formulation such as antioxidants which are substances which protect cells from damage by not stable molecules; such a molecules are known as free radicals. Free radicals have ability to cause cancer and antioxidants react with free radicals and stabilized its effect. Vitamins A, C and E, carotene and other substances. Antioxidants are the substances which have ability to slowing or preventing the oxidation (addition of oxygen) of other molecules. Oxidation is chemical reaction will transfers electrons to an oxidizing agent from substances.

Natural antioxidants are classified as minerals, vitamins and Phytochemical. Minerals are cofactors of antioxidants enzymes and examples are Manganese, zinc, copper and iron. Vitamins are used for body metabolic functions and include Vitamin C, E and B. Phytochemicals are the phenolic compounds that are neither minerals nor vitamins. Flavonoids are good example of Phytochemical which are phenolic compounds give vegetable fruits, seeds, flowers leaves and bark. Catechins are found in black and green
Carotenoids are found in fruits and vegetables which is fat soluble color. Beta carotenones are the Phytochemical found in carrot and converted into Vitamin A when the body consists of less amount of Vitamin. In tomatoes high concentration of Lycopene and Zexantin was found high concentration in spinach and other dark greens.

Cosmetology is a cosmaceuticals and is defined as the science of changing normal appearance into colorful appearance. Cosmetology cosmaceuticals are cosmetic products consists of biologically active ingredients gives medical or drug like benefits to the users. Herbal cosmetics is nothing but products or formulated, using different variety of cosmetic ingredients to form a base in which one or more herbal ingredients are added in it to give benefits to the users shall be called as Herbal Cosmetics. Herbal cosmetics now become new modern trend in the field beauty and fashion world. These herbal products are getting popularity in today’s world and most of women’s preferred herbal or natural products over chemical products for their personal care to increase their beauty as these products supply nutrients to the body and increase health and give satisfaction to the users as these are free from synthetic chemicals and have less amount of side effects as compared to synthetic products. According to Ayurveda, a number of factors are determine skin health and still having characteristics of youth. It consists of three types of balance, such as kalp in balance (accurate moisture balance), Pitta in balance (effective functioning of metabolic mechanisms that co-operate all reactions of skin related to chemical and hormonal) and Vatta in balance where efficient circulation of blood and nutrients of different layers of skin.

The three datus of body tissues related to health are especially reacted in skin. They are as Rasa called as nutritional fluid, Rakta called as blood and Mamsa called as muscle. Rasa datus sinking all body tissues particularly make the skin healthy, Blood or Rakta in coordination with liver function helps to detoxify the skins of toxins, while muscle provides firmness to the skin. Selective cosmetic products should provide to all these type of datus. The hair and skin beauty will depends on the health of individuals, their diet, routine job work, conditions related to climate and their maintenance.

In this modern era used of herbal and cosmetic is increased rapidly and suddenly because of their high benefits, low cost and less side effects. The
word cosmetics is defined as the herbal products apply on body by rubbing, pouring and sprinkled for purpose of cleaning, beautifying increase appearance is called as cosmetics. Bio-pesticides are the ecofriendly pesticides which are obtained from biochemical substances, plants and microbes. Not all the natural herbal products are called as biopesticides. There are many disadvantages related to the use of chemical pesticides as

a) There is some variation in genes in plant population is occur due to chemical pesticides.
b) It will reduce quantity of beneficial species of plant because of chemical pesticides.
c) Due to chemical pesticides it will harm the environment or polluted the water.
d) Using chemical pesticides there is food poisoning may occur.
e) Health related problems may occur such as cancer or other diseases may occur.

The use of natural pesticides will reduce loss of exposure to chemicals, decreases water pollution using natural pesticides, cause smaller amount of harm to natural pests, biodegradable and provide better nutritional quality of products. The target of pest controlled can be done by use of plants that are growing where it is not wanted posses properties that will kill pests. It has wide amount of application over all pests. It will decrease cost of crop production, reduce the mosquitoes and other insects from place where lot of water is present like drain and residential areas. Biopesticides can be classified as microbial pesticides which contain bacteria, fungi, algae or protozoan type of microorganism as the active ingredients.

Different types of pest controlled are used to control over microbial pesticides. There are separate active ingredients are used as a specific target pest. For example, fungi are used to control weeds and other type of fungi that will killed specific insects. Certain insects are found in potatoes; cabbage and other crops which can control by varities of microbial pesticides such as bacterium Bacillus or also called as Bt. Bacillus thuringiensis produce certain proteins that are dangerous to specific insects. Plant pesticides are the important pesticides which obtained from plant genetic material that are added in the plant.
Biochemical pesticides are one of the important types of pesticides obtained from naturally occurring substances that control pest by non toxic mechanism. Conventional pesticides are synthetic pesticides that usually kill or inactive the pest. Biochemical pesticides are the substances that interfere with plant growth regulators or substances that will attract pests. The growth in demand of biochemical pesticides are increase throughout the world along with India. Consumption of biopesticides will increase day by day in India. In India farmers are given some education about pesticides and their advantages and disadvantages. India has a long history of using herbal drugs with a safe way which is mention in alternative system of medicines such as Ayurveda, Yoga, Unani, Homeopathy, Siddha and Naturopathy.

These systems are sided by using modern system of medicine called as Allopathy system of medicine. Millions of Indian peoples are used herbal drugs regularly in various ways such as spice, remedies for home, health foods or self medication or the herbal drugs are prescribed in non allopathic form or systems. Most of peoples are now intrssted in taking modern medicine to treat pain in case arthritis where pain occurs in joints. Modern medicine such as endopar, dynapar and others which consists of diclofenac sodium as a main constituents useful to relieve pain. But such drugs have side effects like liver damage and other side effects. To overcome that problem herbal drugs is always better than modern medicine.

5.2 Conclusion

For doing research work on rheumatoid arthritis, number of literature survey can be done by seen the journals and numbered of referred books. From that, ten plants are selected to study pharmacological activity. From that two plants like the *Jatropha curcas* and *Vitex negundo* leaves are selected to study rheumatoid arthritis activity. Assembling or obtaining of both plants are from Maharashtra local area of Maharashtra like Shahada Lonkheda, district-Nandurbar. This region is called as Satpuda region nearer to Gujarat. Both *Jatropha curcas* and *Vitex negundo* leaves was established as true by professor S. K. Tayade, Head, branch of plant called as botany, Art's, science & commerce school, Lonkheda, Shahada, District-NDB, Maharashtra. Collected leaves of both plants are taken on tray and dried in to room or under
shade for seven to ten days. After dried leaves of both plants are converted in to rough or loose in texture in powdered form. The identified leaves are subjected to study various quality control parameters such as ash worth, extractive worth, alcohol soluble extractive worth and water soluble extractive worth, loss on drying etc. were carried out as per pharmacopoeial literature. Transverse section of both *Jatropha curcas* and *Vitex negundo* leaves can be done which show xylem, phloem, epidermis, stomata and other microscopically characters. All this characters can observe under the microscope.

In the present study powdered shade leaves of *Jatropha curcas* and *Vitex negundo* leaves were subjected to various extraction techniques like continuous hot extraction method and maceration by using various solvents such as petroleum ether (40-60°C), alcohol and water. After extraction there is number of extracts are obtained such as petroleum ether extract, alcohol extract and water extract. Firstly weigh all the extracts and see the colors of all extracts. All these extracts are used to study introductory investigations of both leaves of *Jatropha curcas* and *Vitex negundo* and study pharmacological activity such as anti-arthritic activity. Result of introductory investigation of Phytochemical work led to the conclusion that,

In *Vitex negundo* leaves, extract of petroleum ether solvent gives positive test of steroids and lipid content. The extract of alcoholic solvent gives positive test of saponin, steroids, alkaloids, Flavonoids, amino acids, glycosides and fats. The aqueous solvent extract shows carbohydrates, glycosides, saponin and amino acids.

In *Jatropha curcus* leaves, extract of petroleum ether solvent gives positive test of steroids, carbohydrates and lipid content. The extract of alcoholic solvent gives positive test of saponin, glycosides, carbohydrates, and alkaloids. The aqueous solvent extract shows carbohydrates, glycosides, saponin and amino acids.

Then all extracts of both leaves of *Vitex negundo* and *Jatropha curcus* leaves was used to study pharmacological actions. For that OECD guidelines are used to studied acute oral toxicity in albino mice having weight in between 25 to 30 g. The oral toxicity studied of both leaves extract shows symbol of toxicity like sedation and convulsions at 2000mg/kg b.w. of Pet. Ether extract,
alcohol extract and Fresh Aqueous extract. 1/10th of respective dose for all these extracts were selected as a therapeutic dose i.e. 200 mg/kg body weight. The therapeutic doses for anti-arthritic activity were selected according to the LD50 cut-off values. Formalin was induced in rats was selected as a model to study anti-arthritic activity in Wister albino rats. In this method, arthritis was produced in rats by inducing 0.1 ml of formalin chemical in to sub planter region behind the left foot of Wister albino rats. The extracts of both leaves given to rats from the initial days i.e from 0 day, continued till 10th day. The percentage inhibition of left foot volume of injected formalin rat by using percent inhibition formula. (Control edema was assumed to be 100%). during this ten days change in body weights of all groups extract was measured on each day and recorded change in body weight of rats. It is one of the good parameters to study anti-arthritic activity.

On 10th day the blood was withdrawn from retro orbital vein for assessment of hematological parameters. Blood parameters like hemoglobin and WBC of all extracts of Jatropha curcas and Vitex negundo leaves was studied and recorded. These hematological parameters are also one of the important parameters to study anti-arthritic activity in rats. The results of hematological parameters of Vitex negundo and Jatropha curcas leaves can be shown in Table no 21 and 22 respectively. Biochemistry profiles can also studied in albino rats. In this nitric oxide level, vascular permeability, Latency time to explore, ambulatory, rearing, grooming, urination and defecation. Radiography study can also be done to study anti-arthritic activity. The effects of extract of various extract and standards on formalin induced arthritis in rats are shown in the tables.

In case of Vitex negundo leaves, left back foot of rat shows greater amount of inhibition in alcoholic extract i.e. 62.16 percent as compared to standard drug diclofenac sodium i.e. 71.89 percent. Other extract like petroleum ether solvent extract and watery solvent extract shows least and moderate amount of inhibition of left foot of arthritis rats. The results of percent inhibition of left foot of arthritis rat can be seen in Table no 17 and graph no 9. Clearly see that alcoholic solvent shows better left foot inhibition than other two extracts.

In case of Jatropha curcas leaves, left back foot of rat shows greater amount of inhibition in watery solvent extract i.e. 65.04 percent as compared to
standard drug diclofenac sodium i.e. 70.27 percent. Other extract like petroleum ether solvent extract and alcohol solvent extract shows least and moderate amount of inhibition of left foot of arthritis rats. The results of percent inhibition of left foot of arthritis rat can be seen in Table no 18 and graph no 10. Clearly see that alcoholic solvent shows better left foot inhibition than other two extracts.

As per the results both *Jatropha curcas* and *Vitex negundo* leaves shows good anti-arthritic activity. When results of both the plants are compared with standard drug Diclofenac sodium, *Jatropha curcas* leaves shows better activity than that of *Vitex negundo* leaves. In which aqueous extract of *Jatropha curcas* leaves shows better activity than that of other two extracts. It consists of glycosides, saponins, carbohydrates, and alkaloids as major chemical constituents. From which saponin shows better anti-arthritic activity than other constituents. It was subjected to detailed photochemical investigation using Thin Layer Chromatography (TLC) techniques.

Aqueous or water extract was selected for Thin Layer Chromatography/ High Pressure Thin Layer Chromatography analysis for separation, purification isolation and identification of Saponins. Separation and isolation of saponins was done by preparative thin layer chromatography. In which solvent system is selected as Chloroform: Methanol: Water (70: 30: 40) for aqueous extract. TLC is base on principle of adsorption phenomenon in which compounds are separated according to adsorptive properties in which if the substance have more adsorptive properties towards adsorbents, separation is slower because it stay more time on surface of adsorbents and if the substance having less adsorptive towards adsorbents, separation is faster because the compounds stay less time on adsorbents. So less adsorbents substances travels through stationary phase faster than more adsorptive substances.

In TLC, mobile phase is used as solvent and selection is on the basis of polarity. Polarity is increases from petroleum ether to water. Water is act as highest polar compound. The stationary phase is used in TLC is silica gel G which is act as inorganic adsorbents. In this G stands for gypsum as a binder, it will bind the silica gel to the glass plates of TLC. Number of various sizes of glass plates is used in TLC for separation and identification of substances. There are four techniques are used to developed plates such as
pouring method, dipping method, spreading method and spraying method. Generally pouring method is used to develop plates. For activation of plates, place the plates in oven for activation for one hundred five degree celcius for fourty to fifty minutes. It will remove any water content present in the plates or any other solvents present in to plates. There is developing chamber is used for developments of plates which is in glass form. The sample should be apply with the help of capillary tube of applicator. There is various developing techniques are use in separation of substance. The developing methods such as ascending method means solvent is run from bottom to the top side of plates. Second metod is descending method which means solvent is run from top to the bottom side of TLC plates with the the help of trough i.e. solvent run with the gravity.

The third method is ascending and descending method in which solvent is run from bottom to top side and top to bottom side respectively. The fourth method is two dimentional method in which separation is on two dimentional way. In this case ascending metods are used for separation of substance from watery extract of *Jatropha curcas* leaves.

TLC profile of aqueous extract of *Jatropha curcas* leaves was developed for the presence of saponins using solvent system like Chloroform: Methanol: Water in proportion of [7:3:4]. Spots are visualized by spraying agents like Anisaldehyde Sulphuric acid as well as using Iodine Chamber. Separation and isolation of Phytoconstituents of aqueous extract of *Jatropha curcas* leaves was done by using adsorption column chromatography and TLC.

One blue color spots are observed in aqueous extract of *Jatropha curcas* leaves on TLC. Which having R_f Value is 0.77. These are isolated compounds and designated as RAA/AE/JC1. The saponins were further characterized by spectral studies. The isolated compound was then subjected to UV, HPTLC and FTIR studies.

In UV spectrum isolated compound RAA/AE/JC1 shows peak at 255 nm. FTIR spectrum has shown presence of following structural characteristics. It showed characteristic absorption at 3370.60 cm^{-1} (Free-OH stretching, Phenolic), 2926.24 cm^{-1} (C-H stretching), 1596.95 cm^{-1} (C=O group), 1405.37 cm^{-1} (O-H deformation), 1343.20 cm^{-1} (C-O ether linkage), 1116.67 cm^{-1}, 762.62 cm^{-1} (C-O stretching, C-H deformation). The isolated compound is
then subjected to anti-arthritic activity in formalin induced arthritis rats. Same parameters like hematological parameters like HB and WBC change in body weight and change in left back foot of rats can be studied and recorded. The compound RAA/AE/JC1 shows maximum inhibition of paw edema in Wister albino rats as compared to standard drug diclofenac sodium.

It shows percent inhibition of rat left foot is 67.22 percent as compared to standard drug diclofenac sodium which is 71.11 percent. The other parameters like body weight change and blood parameters like WBC and HB can be studied and shown in table no 25 and 26 respectively. The overall results of both extracts of *Vitex negundo* and *Jatropha curcas* leaves will led to conclude that both plant leaves shows good pharmacological activity when compared with control and standard drug like diclofenac sodium.

When compared both the results, *Jatropha curcas* leaves shows better activity than that of *Vitex negundo* leaves. In which aqueous extract shows better activity than that of other two extract, as it contains major chemical constituents as saponins, steroids, Flavonoids and alkaloids. From aqueous extract, one saponin compound was isolated, which is designated as RAA/AE/JC1 and characterized by Spectroscopic methods. Isolated compound RAA/AE/JC1 show significant anti-arthritic activity. However, this claim demands further pharmacological screening and detailed clinical study of *Vitex negundo* and *Jatropha curcas* leaves.

Carrageenan is one of the important model to study anti-inflammatory and anti-arthritic activity in rats. From table no ---- , it is observed that Carrageenan induced paw edema in alcoholic extract of *Vitex negundo* leaves shows maximum inhibition of paw edema (66.45 %) as compared to petroleum ether extract (29.07 %) and aqueous extract (41.90 %) respectively. From table no ----- It is observe that, aqueous extract *Jatropha curcas* leaves shows maximum inhibition (60.02%) as compared to petroleum ether extract (36.80 %) and alcoholic extract (39.80 %) respectively.

The anti-inflammatory effect of carrageenan induced in rat paw edema via Aspirin gradually increased and reached at higher level after 3 hrs. It is reported that carrageenan induce inflammation in to rats by escalating Prostaglandins E2 release and leukocytes migration. It is responsible to increase the concentration of Cyclooxygenase-2 in skeletal muscle, epidermis
and also inflammatory cells in air-pouch models. The production of prostaglandin E2 is connected through the expression of cyclooxygenase-2. Inflammation induced via carrageenan and involves three distinct phases of the discharge of the mediator; as well as serotonin & histamine in the primary phase (0-2 h), kinins released in the second phase (3 h) and PG in the 3rd phase (>4 h). The anti-edematous response was also significantly decreased in rats pre-treated with indomethacin and the known COX inhibitor. The aqueous extract of *Jatropha curcus* leaves and alcoholic extract of *Vitex negundo* Linn leaves showed prominent inhibition till the end of 3 hr and their effect gradually decreased showing that their effect was due to inhibition of histamine in the first phase as well as partly due to inhibition of kinins. Herbal medicine play vital role for the production of potent therapeutic agent or synthetic agent. In India more than seventy percent of people still depend on traditional or herbal medicine. Some developing countries are also depending on traditional medicine or herbal medicine. This is base on various species of plants and animals for their health care. Demand of herbal medicine will increase day by day in India as well all over developing countries because of their advantages like low minimum rate, give more protection to the users and fewer side effects. Herbal medicines or drugs are called as plants materials or herbals, involves use of parts of plant like root, fruit seeds, barks, leaves and whole plants used for the treatment of injuries and illness. Herbal drugs are those drugs used to prevent from diseases as well as healing and for better health. Herbal products or preparation are prepared from plants for many purpose like to treat disease or prevent from diseases. Herbal medicine is the oldest methods of mankind when compared with modern medicine for health care of man. WHO said that herbal drugs has a complete, labeled effective products for human being that consist of varities of active constituents and ingredients present in various parts of herbal drugs such as roots, fruits, seeds, bark, leaves and aerial part. World Health Organization has set a rules or guidelines for evaluation of quality, safety and efficacy of herbal drugs. Herbal drugs is the main ingredients in every systems such as traditional, Ayurvedic, naturopathy, allopathic and other system of medicine. The uses of herbal drugs are increases because of toxicity and side effects of modern
medicine. So the manufacturer manufacture more amounts of herbal drugs now days. From last ten or fifteen years, lots of herbal dugs are used by peoples in India as well as around the world with no prescription. Some herbal drugs use can be discontinued due to its side effects and toxicity.

5.3 Future prospectus of Herbal medicine

The use of herbal medicine and other herbal products will increase day by day in both developing countries as well as developed countries of the world. Professionals of health, policy related to herbal drugs and public are eagerly concern about safetyness, efficient, quality, preservation and developments problems of herbal products and preparation.

Public those are using herbs their demands are grown for evidence on safety, efficient and quality of herbal base products. In order to maintain the demands of public, there is extensively research on herbal products is needed to be undertaken with greater degree of care related to health but also on the basis of commercial benefits. Luckily lots of Phytochemical and pharmacological research work has to be done on herbal medicine now days throughout the world with greater care.

Researcher has to be done to isolate and identify the active constituents present in plant material or herbal medicine by using number of analytical techniques like extraction, chromatography, UV, IR, NMR and Mass techniques and prove the truth of efficacy and safety. Most of herbal medicines are used not totally on the basis of scientific but on the basis of folk used.

In coming years, the trend of using herbal medicines is increases rapidly throughout the world which contain relevant chemical constituents and give good pharmacological activity. Some scientific evidence from some clinical trials is quite strong for the application of herbal drugs. Herbal drugs are the drugs are not being effective against serious cases or trauma.

Some herbal drugs can cause some allergic reaction and consumer must sure about allergic reaction. Modern medicine also shows allergic reaction but doctors or patients are well known about allegic reaction. The government of respective countries not approves such herbal medicine. Herbal medicine can be take by consumer on its own risk and but in case of modern medicine,
government can expect good quality assurance. If the quality of herbal medicine and safety their production can be done properly by developing certain rules and regulation but in most of countries rules and regulation can no be develop properly related to herbal medicine.

There is no guarantee related to the sold of herbal drugs and herbal drugs quality. Proper use of herbal drugs with greater amount of quality gives better therapeutic effects to the consumers. At the same we have to know that herbal drugs are not free from side effects. They also show some adverse effects. Some times some adulterated or mixing of same quantity of drugs reduces the quality of herbal drugs and increase harmful or dangerous effects on human being.

5.4 Suggestion

- In this work leaves are used to study pharmacological action, there is other parts like roots, fruits, bark or entire plant are also used for further work.
- Before doing some research work leaves of both plants are washing with clean water. So if any forieghn particles are present on the leaves are wash with the water. Drined the water carefully after washing.
- Properly dried the parts of plants before working. It should be always being dried under shade. So the sunlight will not directly come in contact with leaves or other parts of plant.
- Use highly pure solvents for extraction of leaves of both plants. So it give highly pure form of extract with greater amount of active ingredients present in it.
- There is number of different extraction methods are used to study Phytochemical and pharmacological action of herbal drugs. Extraction methods like maceration, percolation and counter current methods are used by using different solvents. Different solvents give different type of active constituents in it.
- There is various animal models are used to study pharmacological action of herbal drugs with greater effect such as for diabeties alloxan induced in rats are used, for antiarthritic activity formalin induce or complete frends adjuvant arthritis in rats are used and carrageenan
induced in to the left foot of rats are use and liver study can be studied in case of hepatic activity.

- Separation and isolation of different active constituents present in the plant can be done by sing various chromatographic and spectroscopic methods. These isolated active constituents can be helpful to study various activities.
- Anti-arthritic activity of leaves should be evaluated for polyherbal formulation and in syngentic effects.
- Some clinical trials must be carried out on polyherbal formulation for its anti-artritic activity.

5.5 Limitation or disadvantages

- **Herbs are not properly in much condition - Allopathic system** of medicine treat serious and sudden illness and accidents faster and effectively than traditional or herbal medicine treatments. An Ayurvedic or herbalist can’t treat broken leg as fast as modern medicine and also in case of heart attack doctors preferred modern medicine than traditional or herbal medicine.

- **Instructions regarding dosage are not properly** - Another limitation is that on herbal medicine, there is no proper doses are mention that is one of the real risks of overdose of herbal medicine as compared to modern medicine.

- **Chances of poison effect associated with wild herbal drugs** - During harvesting of herbal drugs, identification or picking of wrong or poisons herbal drugs will real risks of poisoning themselves. Sometimes wrong parts of the plants also create poisoning effect.

- **Interaction with medication** - Treatments with herbal may interact with medicine or with other drugs. Nearby all herbs come with some warning and many of herbs are used for anxiety. It is important to all users of herbals to take advice or suggestion from doctors to avoid dangerous interaction with medicine.
• **Deficiency of prescribe rule**- There is no tight rules regarding buying of herbal drugs so sometimes consumers can run the risk of buying domestic or poor quality of herbs. The quality of herbal drugs may vary from manufacture to manufacture, brand to brand and batches. This may create lots of problem prescribe right quality of drug with right dose of herbal drugs.