Introduction
By definition, the word *natural* is an adjective referring to something that is present in or produced by nature and not artificial or man-made. The term *natural products* today is quite commonly understood to refer to herbs, herbal concoctions, dietary supplements, traditional Chinese medicine, or alternative medicine (Holt and Chandra, 2002). Alternative medicine for the treatment of various diseases is getting more popular. Many medicinal plants provide relief of symptoms comparable to that of conventional medicinal agents (Verpoorte, 1999). Plants are natural and traditional sources of medication in large parts of the world. Herbs have been used since ancient times by physicians and also by layman to treat a great variety of human diseases. A wide variety of herbs singly and in mixture have been extensively investigated in basic biological sciences to evaluate their chief as well as supplementary, complementary and synergistic action in health and diseases (Rajeshwari and Andallu, 2012). Herbal products are receiving increasing public interest, and herbal treatment is now the most popular alternative therapy (Zhang et al., 2009). The exploration of traditional knowledge for cure to common diseases is attractive since antiquity. The medicinal plants are responsible for the most of the medicine and food used in modern society. It is estimated that an amount of 20,000 species from several families are useful for these purposes.

The World Health Organization (WHO) estimates that approximately 80 percent of the world’s population relies primarily on traditional medicines as sources for their primary health care (WHO, 1996; Farnsworth et al., 1985). Over 100 chemical substances that are considered to be important drugs that are either currently in use or have been widely used in one or more countries in the world have been derived from different plants. Approximately 75 percent of these substances were discovered as a direct result of chemical studies focused on the isolation of active substances from plants used in traditional medicine (Cragg and Newman, 2001). Indeed, if one looks at new drugs from an indication perspective over the same period of time, over 60 percent of antibacterials and antineoplastics were again either natural products themselves or based on structures of natural products. One of the earliest treatises of Indian medicine, the Charaka Samhita (1000 B.C.) mentions the use of over 2000 herbs for medicinal purpose (Meenal et al., 2010). Plants continue to serve as possible
sources for new drugs and chemicals derived from various parts of plants (Srivastav et al., 2011). The natural products derived from medicinal plants have proven to be an abundant source of biologically active compounds, many of which have been the basis for the development of new lead chemicals for pharmaceuticals.

The costs of drug discovery and drug development continue to increase at astronomical rates, yet despite these expenditures, there is a decrease in the number of new medicines introduced into the world market. Despite the successes that have been achieved over the years with natural products, the interest in natural products as a platform for drug discovery has waxed and waned in popularity with various pharmaceutical companies. Plants today are most likely going to continue to exist and grow to become even more valuable as sources of new drug leads. This is because the degree of chemical diversity found in plants is broader than that from any other source, and the degree of novelty of molecular structure found in plants is greater than that determined from any other source (Cragg et al., 1997; Harvey, 2001). Higher plants have been over time an extremely popular source of natural products (O’Keefe, 2001).

Plants chosen for drug development are most commonly selected based on their use in traditional medicine. A plant becomes medicinal only when its biological activities suggested by ethnobotany have been reported or scientifically investigated and established. The isolation of the constituents of medicinal plants has been carried out now for almost two hundred years. It commenced with the isolation of opium alkaloids in the early 19th century which has resulted in the discovery of a large number of compound with a very wide diversity of structures and biological activity (Deraniyagala et al., 2003). The last fifty years has seen much activity in this area and many thousands of novel compounds have been isolated and characterized. The research for drugs from plants should focus on tropical countries, because over 50 percent of the estimated plants species found on earth come from tropical forests, which are currently being destroyed at very alarming rate, to give way for construction and or mineral development or exploitation.
After centuries of empirical use of herbal preparation, the first isolation of active principles – alkaloids such as morphine, strychnine, quinine etc. – in the early 19th century marked a new era in the use of medicinal plants and the beginning of modern medicinal plant research. Emphasis shifted away from plant derived drugs with the tremendous development of synthetic pharmaceutical chemistry and microbial fermentation after 1945. Plant metabolites were mainly investigated from a phytochemical and chemotaxonomic viewpoint during this period. Consumption of medicinal plants has almost doubled in Western Europe during that period. Ecological awareness, the efficacy of a good number of phyto pharmaceutical preparations, such as ginkgo, garlic or valerian and increased interest of major pharmaceutical companies in higher plants as sources for new lead structures has been the main reasons for this renewal of interest. Phytomedicine almost went into extinction during the first half of the 21st century due to the use of the ‘more powerful and potent synthetic drug’. However, because of the numerous side effects of these drugs, the value of medicinal plants is being rediscovered as some of them have proved to be as effective as synthetic medicines with fewer or no side effects and contraindications. It has been proved that although the effects of natural remedies may seem slower, the results are sometimes better on the long run especially in chronic diseases (Akunyili, 2003).

Of the 252 essential drugs selected by WHO, 11% comes from plants and 8.7% from animal kingdom (Marques, 1997). The industrial revolution and development of modern chemical and engineering technology has facilitated the preference for synthetic products for pharmacological treatment. But the impact of these products has some negative effects like toxicity, etc. and for this reason; the researchers are once again showing their interests in the natural products for the pharmacological treatment. There are several reports that the toxicity of natural compounds is much lesser than the synthetic compounds. 74% of all plant-derived drugs in clinical use worldwide have been discovered through follow-up investigation of their ethno medical uses (Soejarto, 1996). The clinical applications of taxol, etoposide and artemisinin have helped to revive an interest in higher plants as sources of new drugs (Phillipson, 1999). It is estimated that around 2,50,000 species of higher plants are
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existing and the majority of these have not been examined in detail for their pharmacological activities (Park and Ernst, 2005; Mamtani and Mamtani, 2005) whereas some plants have been tested with promising results (Aggarwal et al., 2007), so still there is great potential for discovering novel bioactive compounds. There is a worldwide belief that herbal remedies are safer and less damaging to the human body than synthetic drugs. Therefore laboratories around the world are engaged in screening of plants for biological activities with therapeutics potential. The traditional Indian medicinal system mentions herbal remedies for the treatment of variety of diseases. Numerous drugs have entered the International Pharmacopoeia via the study of Ethnopharmacology and traditional medicine. Traditional medicines can offer a more holistic approach to drug design and myriad possible targets for scientific analysis. Powerful new technologies such as automated separation techniques, high-throughput screening and combinatorial chemistry are revolutionizing drug discovery. Traditional knowledge can serve as powerful search engine, which will greatly facilitate intentional, focused and safe natural product drug discovery and help to rediscover the drug discovery process.

Drugs developed from plants:

Less than 100 years ago, therapeutic agents from medicinal plants have been incorporated into orthodox medicine and examples include the sesquiterpene endoperoxide, artemisinin from the Chinese plant Artemisia annua for the treatment of malaria; and taxol from Taxus brevifolia, used in metastatic breast cancer (Lenaz and Furial, 1993). Other classical examples include atropine, an alkaloid from Atropa belladonna as ophthalmics and synthetic spasmolytics, morphine and paraverine from Papaver somniferum for the synthesis of analgesic and spasmolytics: quinine and quinidine from Cinchona succirubra bark, for malaria and antiarrythma, and digitoxin, most important cardiotonic drug in orthodox medicine from Digitalis purpurea for semi-synthetic cardiac glycosides. Cocaine from Erythroxylum coca for synthetic local aenesthetics. Ephedrine from Ephedra sinica for synthetic sympathomimetics; Reserpine, ajmaline and other alkaloids from Rauwolfia serpentina for synthetic antihypertensives and antiarrythmics. Strophanthin from Since 1961 many compounds derived from plants have been approved in the United States
Study of Analgesic, Anti-inflammatory and Antiarthritic activity of Indian medicinal plant in laboratory animals

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(Lee, 1999). These drugs include vinblastine, etoposide, paclitaxel, vincristine, topotecan, and irinotecan. Strophantus seeds, emetine from ipecac, anthraquinone glycosides from cassia leaf, etc are also used clinically. A phorbol derivative prostratin, was discovered as possessing good anti-HIV activity following the lead of a plant, samoan plant *Homalanthus nutans* used locally for yellow fever.

Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease (Gomes et al., 2010). It is a common disease affecting millions of people (Zhang et al., 2009). Although various drugs have been used to control RA, there are numerous reports regarding the side effects of these drugs (Paval et al., 2009). RA is a major syndrome among the aged people that has been in this world since the beginning of civilization, an oldest disease of the universe. Arthritis has been mentioned in the ancient Hindu and Greek mythology (Sturrock and Sharma, 1977). The first written reference on arthritis was found in the Indian holistic book Chakra Samhita where it has been described as swollen painful joints, initially occurring in hands, feet, causing loss of appetite and occasionally related with fever (Fornaciari et al., 2009). Although RA can start at any age, the peak onset is between 25 and 55 years. RA primarily affects the synovial joints of all extremities and is pathologically characterized by severe inflammation and progressive destruction of cartilage and subchondral bone (Michel et al., 2007). When chronic inflammation occurs in RA, it involves the actions of large numbers of lymphocytes, macrophages and polymorphonuclear cells in the inflamed joint (Haynes et al., 1998). The inflammatory process of RA is reportedly associated with an increase of pro-inflammatory cytokines TNF-α and IL-1β (Fan et al., 2005). The prevalence of RA in Indian subcontinent is 1.5-2 % of population. The epidemiological ratio of arthritis in female: male is 3:1 and the prevalence is 1% of the world population (Mishra et al., 2011). Adjuvant- induced arthritis is a good laboratory model for studying RA (Tanaka et al., 1996; Nagakura et al., 2003). In this model the clinical and pathological changes are comparable to with those observed in human RA (Noguchi et al., 2005; Geetha and Varalakshmi, 1999). The aim for the treatment of this disease is to reduce pain and to minimize the changes occurring during RA. Physiotherapy, acupuncture, physical exercise and analgesics are often prescribed by the rheumatologists. Non-steroidal anti-inflammatory drugs (NSAIDs)
are the first line of defense against arthritis. But these NSAIDs have certain side effects like gastro-intestinal tract irritation; inhibit PG biosynthesis, shows problem in platelets aggregation (Tastekin et al., 2007; Deguchi et al., 2011). Glucocorticoid therapy also shows some side effects like immune suppression, muscular breakdown, pubertal delay etc. Disease modifying anti rheumatic drugs (DMARDs) now days are mostly advised but these drugs have side effects like sepsis, pulmonary tuberculosis etc. Since the available therapeutics have their own limitations so there is a dramatic increase in the use of alternative therapy.

This present research work is an effort to reveal the analgesic, anti-inflammatory and antiarthritic activity of *Cyathocline purpurea* (Buch-Ham ex D. Don.) Kuntze Fam. Asteraceae in experimental animal models. It is expected that the information may open a new dimension in alternative therapeutic management of pain, inflammation and arthritis in the near future.