Introduction

Plants are one of the most important sources of medicines and chemical molecules for the treatment of various human disorders (Sankaran Nair, 2010). Some plant phytochemicals also act as insect repellent and fungicide. New chemical molecules are being discovered for effective treatment of bacterial and fungal diseases (Arora, 2007). Hence, in view of this, medicinal plants are being explored and their phytochemistry and pharmacchemistry are being investigated. Aromatic plants and fragrant flowers are some of nature’s most beautiful creations. In the long history of planetary evolution it was the appearance of flowers that initiated the rapid expansion of biodiversity that has created the world, we now live in. For global benefit, medicinal plants, especially the aromatic species are the key in solving numerous interrelated global issues. The benefits of medicinal plants can be summarized into four major categories:- healthcare, sustainable economics, environmental protection and ecological restoration. Healthcare :- The first global benefit of medicinal plants is nontoxic, affordable locally available for healthcare. Botanical medicine is the oldest form of healthcare and remains the primary source of preventive and curative treatment for the 80% people in developing countries. Economic :- The economic benefit of medicinal plants has two primary aspects. The
first is the income derived from the cultivation, processing and sales of medicinal plants and their products. The second economic benefit is the availability of affordable medicines for local populations. Ecological: The third global benefit of medicinal plants is ecological and environmental preservation and restoration. Ethnobotanical: When communities are suppurated by plant based economics that protect ecosystems and ethnobotanical traditions can be preserved.

Tulsi (*Ocimum sanctum*) is one of the precious medicinal plant. It is beleived that the Tulsi plant is related to God Vishnu and offered special pujas on some auspicious days. "The Queen of Herbs" - is the most sacred herb of India. Tulsi (*Ocimum sanctum*), although, also known as Holy Basil, is a different plant from the pesto variety of Basil (*Ocimum basilicum*). Tulsi has been revered in India for over five thousand years, as a healing balm for body, mind and spirit, and is known to bestow an amazing number of health benefits. ORGANIC INDIA is pleased to offer Organic Tulsi, for the first time, as a stress-relieving, energizing and delicious tea. For Tulsi Tea Collection, we utilize a proprietary combination of 3 varieties of Tulsi: Rama Tulsi (*Ocimum sanctum*) (*Plate-1*), Krishna Tulsi (*Ocimum sanctum*) and Vana Tulsi (*Ocimum gratissimum*). Each variety lends its own distinct and characteristic taste that contributes to the delicious flavour and aroma of our blend. "Modern scientific research offers impressive evidence that Tulsi reduces stress, enhances stamina, relieves inflammation, lowers cholesterol, eliminates toxins, protects against radiation, prevents gastric ulcers, lowers fevers, improves digestion and
provides a rich supply of antioxidants and other nutrients (Bhargava, 1981; Uma Devi, 1999; Shokeen, 2005). Tulsi is especially effective in supporting the heart, blood vessels, liver and lungs and also regulates blood pressure and blood sugar." Dr. Ralph Miller, former Director of Research for the Canadian Dept. of Health and Welfare.

In view of this all the above properties are present in Tulsi plant (Plate-1), the herb taken for present studies. Tulsi, Queen of herb, the legendary “incomparable one” of India, is one of the holiest and most cherished of the many healing and healthgiving herb of the orient. The sacred basil, Tulsi, is renowned for its religious and spiritual sanctify, as well as for its important role in the traditional ayurvedic and unani systems of holistic health and herbal medicine of the all over India mainly in the east. *Ocimum sanctum* Linn. (Labiate/Lamaceae) commonly known as holy basil, is an herbaceous plant found through out the south Asian region. The plant grows wild in India but also widely cultivated in houses and temple gardens (plates 1 and 2). Apart from religious significances, it has a long history of medicinal use in bronchial asthma, dysentery, dyspepsia, skin diseases, chronic fever, hemorrhage and helminthiasis and tropically for ringworms. It is also mentioned in Charak-Samhita, the ancient text book. Tulsi (Os) plays the great role in Ayurveda (Wealth of India, CSIR Publication, New Delhi). Tulsi is an erect sweet-scented pubescent herb 30-100 cm in height growing in abundance in cultivated fields and kitchen gardens. Tulsi essential oils are extremely useful for human health. Its seeds and leaves are used for many human ailments. Its extract is also useful for mankind. The extract of Tulsi (*Ocimum sanctum*)
(Plate-5) leaves is hypoglycaemic, immuno-modulatory, anti stress, analgesic, antipyretic, anti-inflammatory, anti-ulcerogenic, antihypertensive, radio-protective, anti-tumour and antibacterial (Das and Vasdevan, 2006).

Many deaths occur every year in India due to mosquitoes transmitted diseases like diahorea, cholera and skin diseases (Plates 21 and 22). The mosquitoes (Plate- 17) are heamatophagous, nueseance and diseases transmitting insects found abundantly in India and other south asian countries. They transmit germs of many diseases like malaria, dengue, filaria, encephalitis, yellow fever and viral diseases. Mosquitoes are well known nuisance and diseases transmitting insects associated with human being since human evolution. Only female mosquitoes (Plate-17) feed on the vertebrate blood for vitelogensis in eggs of the ovary. During blood sucking, it pours her saliva into the area. This saliva generally has an allergic reaction such as itchy red bumps and swollen hives. For those with increased sensitivity to bite, a blister, bruise or large inflammatory reaction can occur. Not only this, it also transmits the germs of malaria (*Plasmodium* sps.) with saliva in the blood of healthy person. Mosquitoes are adapted for infiltration and have been known to find their way into residences and also breed nearby or in houses having open water storage tanks etc. There are many method used for mosquitoes control. Some target larval stages while others are used to kill or repel adults. A chemical commonly used for the repellent and killing mosquitoes considered slightly toxic to larger animals including man. In India the most important mosquitoes borne disease is malaria besides encephalitis, dengue
and chickengunea. The most effective solution for malaria control efforts in the third world war were plane mosquito nets and insecticide-laced mosquitoes nets. Other popular method are used now days for house hold mosquito control are small electrical mats plugged into a socked, mosquito repellent vapours and mosquito coils all having “allethrin” which is very harmful for adults as well as children. Today, there are many mosquito repellents are being used such as goodnite (Pyretherin) and mortein (Allethrin) etc. which are injurious to human being in one way or the other. Hence, alternative, effective and ecofriendly methods for their control are being explored using phytochemicals.

Houseflies (*Musca domestica* L.) are a major pest species of livestock units and landfill sites (Plate- 18). These are among the common annoying insects around the houses that are often seen in great numbers during the summer. These flying pests often lay eggs in warm and moist areas such as garbage bins, animal manures, rotten vegetables and fruits, or other areas contaminated by any of these organic materials. Their larvae are composed of light colored legless grubs otherwise known as maggots that develop into adult flies within a period of 7 days. The type of mouth parts of these houseflies have made them incapable of biting. But, it doesn't mean that they are harmless. Houseflies are susceptible of carrying disease-causing bacteria and viruses due to their inclination of consuming animal and human wastes. Health disorders caused by flies include diarrhoea, cholera, dysentery, or *Salmonella*. The house fly (*Musca domestica* L.) is also a major pest of dairy cattle because of its potential to spread diseases, and reduce feeding efficiency and
milk production in livestock. Synthetic insecticides cannot be used in organic dairy operations and hence, there is a need for alternate strategies to control these flies.

Ringworm, a common fungal disease caused by *Tinea incognito* (plate- 11-22). It commonly infects human skin causing serious itching and other skin disorders. Ring like mark and swelling occurs. Its infection occurs more frequently during rainy season on thigh, armpits, buttock, lower part of back, behind ear, on pubis and axillae of legs etc. and on other skin parts. It is treated generally by steroidal lotion, long use of which is injurious to skin. Diarrhoea and cholera are also dreaded diseases caused by *Salmonella* and *Vibrocholerea bacillus*. Many people, especially childrens are affected by these every year and sometimes death occurs due to dehydration. Diarrhoea can be defined absolutely or relatively. Absolute diarrhoea is defined as more than five bowel movements a day or liquid stools. Relative diarrhea is defined as an increase in the number of bowel movements per day or an increase in the looseness of stools compared with an individual's usual bowel habit. Diarrhoea may be either acute or chronic, and each has different causes and treatments. Complications of diarrhoea include dehydration, electrolytes (mineral) abnormalities, and irritation of the anus.

Looking to the effectiveness of Tulsi against various disorders and commonly occurrence of mosquitoes transmitted diseases, ringworm, cholera and diarrhoea in India. Present investigations on the effect of chemical molecules of Tulsi leaves against mosquitoes as repellent and larvicidal, fungicide against tineasis and
antibacterial against *Salmonella* and *E. coli* have been taken up. These studies will be very useful for pharmaceutical companies to use Tulsi chemical molecules tested during present course of investigation against various human disorders and insect vectors.