Chapter B

Review of literature

Since, ancient time, phytochemicals from medicinal plants have been studied and used for curing various human diseases. Their side effects are negligible as compared to modern allopathic drugs. Tulsi (*Ocimum sanctum* L.) is such an important medicinal plant, whose phytochemicals are very useful for mankind. Tulsi is mentioned in Padam Purana - "Just half a leaf of Tulsi is as useful in keeping a body healthy and away from diseases, as all the items and medicines made from all the flowers and leaves of the world". Tulsi leaves have significant remedial qualities with respect to dandruff and some skin ailments. It has an effective anti-bacterial quality. The usages of Tulsi are quite common from the ancient age. It is a traditional medical plant grown in every pious Hindu.

Tulsi is found all over the country. It is an annual plant, 30-90 cm heigh, much branched, steam and branches usually purplish, sub quardrangular, 2.5- 5 by 1.6 – 3.2 cm. elliptic oblong obtuse, pubescent on both sides and minutely gland dotted. It is a branched, fragrant and erect herb plant. The Tulsi flowers are small, reddish purple in colour, present in small compact clusters on cylindrical spikes. The fruit are small and the seeds are reddish yellow in colour. The leaves are light green in colour.

The systematic classification of Tulsi (*Ocimum sanctum* L.) is as follows-
Kingdom - *Plantae*
Subkingdom - *Tracheobionta*
Superdivision - *Spermatophyta*
Division - *Magnoliophyta*
Class - *Magnoliopsida*
Subclass - *Asteridae*
Order - *Lamiales*
Family - *Lamiaceae*
Genus - *Ocimum*
Species - *sanctum* L.

et.al. (2002), Gill et.al. (2002), Gupta (2002), Kruger and et.al. (2002), Kavendra Singh et.al.(2002), Muni Ram et.al. (2002), Mediratta et.al. (2002), Khumphant and Lawson(2002), Khanna et.al. (2003), Singh et.al. (2003), Singh et.al. (2003), Singh et.al. (2003), Jirovetz et.al. (2003), Nagassoum et.al. (2003), Nasare and choudhary (2003), Lal et.al. (2003), Geetha et.al. (2003), Poonam Dharmani et.al. (2004), Sudhakar Gupta (2004), Kothari et.al. (2004), Bowes and Zheljazkov (2004), Jyoti Sethi et.al.(2004), Basumatary et.al. (2004), Mahiuddin et.al. (2004), Grayer et.al. (2004), Jaya Jain et.al. (2004), Mikiciuk and Seidler (2004), Adguzel et.al. (2005), Chiang et.al. (2005), Jadhav et.al. (2005), Kicel et.al. (2005), Lemos et.al. (2005), Poonam et.al. (2005), Prakash and Gupta (2005), Rajan et.al. (2005), Reena et.al.(2005), Sembulingam et.al. (2005), Sembulingam K. and Prema Sembulingam (2005), Shokeen et.al. (2005), Silva et.al. (2005), Sood et.al. (2005), Ipsecta Mohanty et.al. (2006), Shweta Gupta et.al. (2006), JMA Hannan et.al. (2006), Hakkim et.al. (2007), Singh et.al. (2007), Pemminati et.al. (2007), Surender Singh et.al. (2007), Nerendra Singh and Marilena Gilca (2008), Raghavendra et.al. (2009), Skaltsa et.al. (2009), Shankar et.al. (2009) and Arti et.al. (2010).

Stress removing properties of Tulsi have been worked out by Bhargava and Singh (1981), while diabetic curing properties was studied by Rai et.al. (1997). The antioxidant effect was observed by Subramanian et.al. (2005), Pratibha and laxmi (2005), Kath and Gupta (2006), Uma Devi (2006), Gupta et.al. (2006).
Significance contribution in the field of chemistry of *Ocimum sanctum* was made by Dr. V. Sankaran Nair (2010).

Various extracts of *Ocimum sanctum* have been studied for antibacterial and antifungal activity. Tests showed inhibitory activity against various gram positive and gram negative bacteria. The study also showed moderate inhibitory action on various test fungi (Halim Eshrat and Mukhopadhyay, 2006 and Deepthi *et al.* 2007).

The essential oils of medicinal plants are used as antifungal. The studies on this aspect are of great value. Most of the fungi cause diseases in human. Several strains of tinea are known to cause many important human diseases such as ringworm, itching and skin allergy etc. The essential oils of *Ocimum sanctum* as well as many plants were studied against these fungi. Many publications have documented the antifungal activity of phytochemicals such as Sekhawat and Prasada (1971), Aguiyi *et al.* (2000), Ayisi and Nyadedzor (2003), Jamil *et al.* (2007), Galon *et al.* (2009), Bobbarala *et al.* (2009) and Khan *et al.* (2010).

The insect and their larvae remain always associated with human population since ancient time and these induce various pathogens in human being causing many diseases and even death of man, these are houseflies and mosquitoes. Hence, their control is necessary. Various repellent and larvicidal chemicals are available, such as goodnight mortein etc. These have harmful chemicals such as Allethrin etc. which effect human health. Hence, ecofriendly repellent are needed. Eugenol oil has been extracted from *Ocimum*. But, its repellent properties have rarely been investigated. Some workers who tried repellent studies on different plants are Butani (1982), Zebit (1984), Sukumar *et al.* (1991), Bhatnagar *et al.* (1993), Hasan and Deo (1994), Pathak (2000), Gill *et al.* (2003), Paula *et al.* (2003 *O. selloi*), Andrnikashvili and reichmuth (2003, *O. gratissimum*), Rajkumar (2004), Mandavgance *et al.* (2005), Veena Prajapati *et al.* (2005), Isman (2006), Amer and Mehlhorn (2006a, 2006b), Gillij *et al.* (2008), Knio *et al.* (2008),

Thus, phytochemicals of medicinal plants investigated by several workers in relation to human diseases are of great significant value. They are ecofriendly and do not cause any side effect on human body. Looking to this point, present studies on “ANTIFUNGAL, ANTIBACTERIAL AND INSECT REPELLENT CHEMICAL MOLECULES OF *OCIMUM SANCTUM* L.” have been taken and investigated which will arm pharmaceutical companies to use these phytochemicals of Tulsi for human welfare.