3. REVIEW OF LITERATURE

Geissman TA. (1963) reported that the mostly traditional medicinal cum aromatic plants have an almost maximum power to synthesize aromatic substances because approx all aromatic plants are medicinal plants. Most of which are phenols or their oxygen-substituted derivatives. Many of these are secondary metabolites of at least 12,000 plant-derived agents have been isolated in the recent past. These substances investigated as plant defence mechanisms against invasion by micro-organisms insects and herbivores. Some of the plant substances such as terpenoids are responsible for odor i.e. quinones and tannins as well as plus pigment of the plant. Many compounds of the plants used by humans to season food yield useful medicinal compounds. The most important and useful major groups of antimicrobial phytochemicals can be divided into several categories. These categories are alkaloids, flavones (flavonoids, flavonols, Quinones), essential oils, lectins, polypeptides, phenolics, polyphenols, tannins and terpenoids. Ahamd AA et al. (1993) exposed the fragrance of plants is associated with essential oils extract from the aromatic cum medicinal plant. This oil consists of secondary metabolites. These secondary metabolites have highly enriched compounds based on an isoprene structure. They are called terpenes and occur as diterpenes, triterpenes, tetraterpenes as well as hemiterpenes and sesquiterpenes. Terpenenes or terpenoids are active against pathogenic bacteria and fungi. Chaurasia SC et al. (1997) also reported that nearly 60% and 49% of all essential oil derivatives possess inhibitory effects upon fungi and bacteria respectively. Baratta MT et al. (1998) and Cosentino S et al. (1999) pronounced that, a large number of essential oil as well as volatile oils and their constituents have been investigated for their highly effective biological activity, antioxidant, antifungal and notably antibacterial properties.
Burgess et al. (2000) delineated that another type of antifungal activity occurs in some specific disease. Another type of antifungal activity is independent of concentration of essential oil because there is no significant increase in activity with increasing concentration. Manohar et al. (2001) observed that the more effective anti-microbial properties of essential oils from medicinal cum aromatic, as well as other edible, plants have been recognized since antiquity. Essential oils are used as a food flavoring agent, possesses a broad spectrum of anti-microbial activities attributed to the high content of phenolic derivatives such as carvacrol and thymol. Some essential oils are used for systemic and superficial fungal infections and further exploration reveals a broad spectrum effect against other pathogenic manifestations that include malignancy. Ali BH et al. (2003) briefed that the seeds of Nigella sativa Linn. of Ranunculaceae family contain more active constituents of ideal essential oil in which the volatile oil and thymoquinone showed protection against nephrotoxicity and hepatotoxicity respectively induced by either disease or chemicals. The seed oil of this family has analgesic, anti-inflammatory, anti-microbial, anti-neoplastic and anti-pyretic activity.

Nakamura et al. (2004) reported that the essential oil of Ocimum gratissimum L. had antifungal activity against many pathogenic fungi like C. albicans, C. krusei, C. parapsilosis and C. tropicalis with MICs ranging between 750 and 1500 µg/mL and in the test of time-kill method. This essential oil showed concentration-dependent antifungal activity. Fabio A et al. (2007) observed that the essential oils and their components taking place of the synthetic drugs and these essential oil are gaining increasing interest as a natural alternatives, particularly against microbial agents because of their relatively safe status wide acceptance by consumers.
**Eldris AE (2008)** recognised that many plants which can be medicinal or aromatic are used for different industrial purposes such as perfumery manufacturing, food and drugs. These compounds of the plants possess a wide spectrum of pharmacological activities. They also do not enhance the antibiotic resistance. The antibiotic phenomenon caused by long-term use of synthetic antibiotics. However, due to an increasing use of herbal and natural products, a special care should be given to their safety, drug interaction and effectiveness because of the widely demanding of natural products. **Sokovic et al. (2009)** reported that the potential of antifungal effects of *Mentha spicata* L., and *Mentha piperita* L. (Lamiaceae), *Thymus tosevii* L. and *Thymus vulgaris* L. essential oils were obtained by hydrodistillation of dried plant material. Their composition was determined by GC-M S.

**Moon et al. (2010)** and **Gupta et al. (2010)** reported that scientific research supports the biological activity of many of the phytochemicals and essential oils which extract from medicinal cum aromatic plants more in their native forms. They were copiously used in Ayurveda and other traditional medicine which dates back to Charaka Samhita a widely famous novel of Ayurveda. **Karakayta et al. (2011)** briefed that the different composition and percentage content of active constituents in essential oils of the aromatic and medicinal plants, which have been found to have an important role in showing down or stopping the bacterial growth or killing the bacteria according to their concentration percentage.

**Ruiz-Navajas et al. (2012)** observed that the essential oils as well as volatile oils containing the bioactive components remarkably antioxidant activity, biological activity, showed moderate activity against food-borne pathogens and food spoilage bacteria and pathogenic fungi. Chemical composition and antibacterial properties of the essential oil and various
organic extracts of L. Japonica against some foodborne/spoilage bacteria (Rahman and Kang, 2009). In his study the researchers tested the antidermatophytic efficacy of the oil and ethanolic leaf extracts of L. Japonica against some skin infectious fungal pathogens.

Rouis Z et al. (2013) reported that the essential oils obtained from Hypericum triquetrifolium can be used as antimicrobial agents and could be safe at non cytotoxic doses according to their ideal concentration. As shown for the tested essential oils, comparative analysis need to be undertaken to better characterize also the antibacterial and antifungal activities of Hypericum triquetrifolium extracts with different solvents as well as their purified fractions and their pure secondary metabolites obtained from same plant.

Atiqur Rahman et al. (2014) investigated and reported that the antifungal potential of essential oil and ethanolic leaf extracts of Lonicera japonica Thunb. was evaluated for controlling the growth of dermatophytes. The oil (1,000 ppm) and extracts (1,500 ppm) of L. japonica revealed 55.1–70.3 % and 40.1–65.5 % antidermatophytic effect against Microsporum canis KCTC 6348, 6349, 6591, Trichophyton rubrum KCTC 6345, 6352, 6375, Trichophyton mentagrophytes KCTC 6077 and 6085, respectively, along with their respective minimum inhibitory concentrations ranging from 62.5-500 and 125-1,000 µg/ml. Also, the oil had strong detrimental effect on spore germination of all the tested dermatophytes as well as concentration and time-dependent kinetic inhibition of M. Canis KCTC 6348. The results demonstrated that L. japonica oil and extracts could be potential sources of natural fungicides to protect human and animals from fungal infections.

H. Elfadil et al. (2015) determined that the antifungal activity of seven Sudanese medicinal plant species against Madurella mycetomatis. Of these, only three species; Boswellia papyrifera, Acacia nubica and Nigella sativa, showed some antifungal activity against M. mycetomatis and were further studied.
Crude methanol, hexane and defatted methanol extracts of these species were tested for their antifungal activity. B. Papyrifera had the highest antifungal activity (MIC 50 of 1 ug/ml) and it was further fractionated.

Approx all above the recent past research studies tells us about the essential oil activities against microorganisms by different type of methodologies i.e. direct extraction of the essential oils, extraction of active constituents of essential oils. So, this research work will be genuine and give more batter results against recent past researches. All the expectations of my reviews with this new research study at present time.