INTRODUCTION
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Arbuscular mycorrhizae establish obligate symbiotic association with 90% of the plants existing in the globe such as agricultural, horticultural, medicinal, fibre, ornamental, shrubs and tropical trees (Barea and Jeffries, 1995 and Smith and Read, 1997). These fungi develop special characteristics structures called arbuscules and vesicles. The arbuscules help in the transfer of nutrients (especially phosphorus) from the soil into the root system. Obligate, mutualistic AM fungi have been studied extensively on a global scale, not only for their ability to help plants to withstand various kinds of abiotic and biotic stresses but also for their new role in evolution, ecosystem dynamics and plant community establishment (Sharma and Johri, 2002). AM fungi comprise approximately 150 species, placed in Zygomycotina, order Glomales and on account of their beneficial association with plant growth, the fossil record of such fungi has helped to unravel the origin of land flora.

The AM fungi are one of the oldest terrestrial organisms that had been part of an ancient symbiosis (Pirozynski and Malloch, 1975; Pirozynski and Dalpe, 1989). Hyphae and arbuscules have been reported in fossils of Aglaophyton and this evidence has established the existence of AM symbioses in the early Devonian period (Remy et al., 1994 and Taylor et al., 1995). Furthermore, molecular clock data based on the nucleotide sequence divergence
of 18s rRNA suggests that the Glomales arose between 350 and 460 million years ago and the symbiosis was instrumental for the successful colonization of land by plants (Simon et al., 1993).

Fossil evidence for sexual reproduction in ancestral AM fungi are lacking, but they represent one of the oldest groups of clonally reproducing eukaryotic organisms on earth (Judson and Nomork, 1996). They account for up to 50% of the total soil microbial biomass (Olsson et al., 1999) and contribute to the maintenance of soil aggregate structure (Rillig, 2004). Because of these characteristics, AM fungi are perceived as one of the most important components of a paradigm shift from conventional to sustainable land management practices (Ryan and Graham, 2002). The fungi involved are Glomus, Gigaspora, Acaulospora, Entrophospora and Scutellospora belonging to Zygomycotina. Oehl and Sieverding (2004) have recently added a new genus Pacispora in the Glomeromycetes. They are obligate symbionts and can be cultured on nutrient media.

The distribution and occurrence of AM fungi in different ecological conditions is believed to be influenced by a number of factors such as soil texture, moisture, depth, pH and temperature (Zajicek et al., 1986). The AM fungal association is also geographically ubiquitous (Bhat and Kaveriappa, 1997) occurring in plants from arctic to tropical regions, over a broad ecological range from aquatic (Ragupathy et al., 1990) to desert environments (Neeraj and Verma, 1991). Mycorrhizal symbiosis formed between plant roots and AM fungi is of great interest to ecologists because of its potential influence on ecosystem
process, its role in determining plant diversity in natural communities and ability of these fungi to induce a wide variety of growth responses in co-existing plant species (Satizabal et al., 1987). The increasing interest in AM fungi in recent years has prompted numerous surveys aimed at enumerating and assessing AM fungi in a particular region or in a natural environment (Parthipan et al., 1991).

AM fungi are not host-specific but exhibit genotypic host preference (Manohorachary et al., 2005). It is now well established that the AM fungi improve plant growth (Murthy et al., 1998 and Abdul Malik, 2000) in different ways like increased phosphorus uptake (Ortas et al., 2002; Vivas et al., 2003 and Schweiger et al., 2007), biological control of root pathogens (Reddy et al., 2006), drought resistance (Auge, 2000), rehabilitation of degraded land, reclamation of soil fertility (Charles et al., 2006), bioremediation (Gaur and Adholeya, 2004 and Li et al., 2006) and increase in biomass of plants (Fattah and Gamal, 2001; Javot et al., 2007 and Yao et al., 2003) and synergistic interaction with beneficial microbes such as nitrogen fixers and phosphate solubilizers (Bashan and Levanony, 1991 and Glick, 1995). Hence they can play major role in the cultivation of agriculture and horticulture crops.

Plant growth in agricultural soils is influenced by a myriad of abiotic and biotic factors. While growers routinely use physical and chemical approaches to manage the soil environment to improve crop yields, the application of microbial products for this purpose is less common. The region around the root, the rhizosphere, is relatively rich in nutrients, due to the loss of as much as 40% of plant photosynthates from the roots. Consequently, the rhizosphere supports large
and active microbial populations including diazotrophs psolubilizers, root pathogens etc, which are capable of exerting beneficial, neutral or detrimental effects on plant growth. The importance of rhizosphere microbial populations for maintenance of root health, nutrient uptake and tolerance of environmental stress is now widely recognized (Subba Rao, 1999). These beneficial microorganisms can be a significant component of management practices to achieve the attainable yield, which could be defined as crop yield limited only by the natural physical environment of the crop and its innate genetic potential.

The potential environmental benefits of application of beneficial microorganisms to plants, leading to a reduction in the use of agricultural chemicals are in line with sustainable management practices and integrated nutrient management programmes. Recent progress in our understanding of the biological interactions that occur in the rhizosphere and the practical requirements for successful inoculant formulation and delivery has increased its reliability in the field and facilitates the commercial development. Such root colonizing microbes that exert beneficial effects on plant development via direct or indirect mechanisms have been defined as plant growth promoting rhizomicroorganisms (PGPRs) (Antoun and Prevost, 2005).

PGPRs enhance plant growth by direct and indirect means, but the specific mechanisms involved have not all been well characterized. Direct mechanisms of plant growth promotion by PGPRs can be demonstrated in the absence of plant pathogens or other rhizosphere microorganisms, while indirect mechanisms involve the ability of PGPRs to reduce the deleterious effects of
plant pathogens on crop yield. Direct enhancement of mineral uptake due to increases in specific ion fluxes at the root surface in the presence of PGPRs has been reported (Bashan and Levanony, 1991). PGPRs have also been reported to directly enhance plant growth by a variety of mechanisms: fixation of atmospheric nitrogen which is transferred to the plant, production of siderophores that chelate iron and make it available to the plant root, solubilization of minerals such as phosphorus, and synthesis of phytohormones (Glick, 1995). They may use one or more of these mechanisms in the rhizosphere. Molecular approaches using microbial and plant mutants altered in their ability to synthesize or respond to specific phytohormones have increased our understanding of the role of phytohormone synthesis as a direct mechanism of plant growth enhancement by PGPRs (Glick, 1995 and Persello - Cartieaux et al., 2003). PGPRs that synthesize auxins and cytokinins or that interfere with plant ethylene synthesis have been identified (Garcia de Salamone et al., 2001).

In recent years, use of artificially produced inoculums of mycorrhizal fungi and other PGPRs for field, horticulture and of late, medicinal plants have increased due to their multifarious role in plant growth and yield and resistance to climatic and edaphic stresses, pathogens and pests (Raman and Mahadevan, 1996). These cost effective and safe bioinoculants are a boon to the farming community in third world countries like India, which are blessed with rich diversity of flora especially medicinal herbs.

India is one of the pioneers in the development and practice of the well documented indigenous systems of medicine, namely Ayurvedha and Siddha.
With the influx of other civilizations and cultures, Unani and Homeopathy systems of medicine also came into vogue in India. Later Allopathy was patronized. Since the advent of chemotherapeutic agents, the value of traditional medicines was partially masked.

However indiscriminate use of antimicrobials especially antibiotics in the Allopathy system led to reemergence of pathogens and horizontal transfer of genes to commensals making them virulent pathogens as well. Also the prolonged use of cardiovascular, antihistamine, neurological drugs and antibiotics caused several pernicious side effects. This has forced greater number of people to gradually migrate and seek remedies and health approaches free from synthetic chemicals and broad spectrum antibiotics and they started looking for drugs that work synergistically with the body's defence.

Now considerable attention has been paid towards the use of eco-friendly, compatible and efficient plant based products for the prevention and cure of various human diseases. There has also been a tremendous upsurge in the demand for phytopharmaceuticals, raw medicinal herbs and vegetable drugs of Indian origin, among the western nations. Most of the western countries which are poor in biodiversity, imported a number of plants from third world countries and introduced them into their pharmacy. The Indian traditional systems of medicines and their practices have since then been revitalized to meet the present requirements of the modern society.

Around 35,000 to 70,000 medicinal and aromatic plants are used in various systems of medicine in different parts of the world (Farnsworth and
Soejarto, 1991). India has a long historical use of large number of medicinal and aromatic plants. It is reported that almost every plant family in the world is represented in India’s rich flora (Harsha et al., 2002). India has about 18,000 species of angiosperms, of which about 3,000 species are considered as important sources of medicinal and aromatic chemical compounds (Rajasekaran, 2001). It is generally estimated that over 6,000 plants in India are in use in traditional, folk and herbal medicine, representing about 75% of the medicinal needs of third world countries (Rajasekaran, 2002).

India being an ‘Emporium of medicinal plants’ the Ayurvedhic and Siddha systems flourished well in the country. The drugs used in Ayurvedhic and Siddha systems are essentially of plant origin. These systems incorporate nearly 700 plant drugs in several medicinal preparations for the management of human health (Purohit et al., 2003). It is also reported that traditional healers use around 2500 plant species and about 100 species of plants serve as regular source of medicine (Maruthi et al., 2000). Also most of the pharmaceutical industries depend largely on whole plants or their specific parts for the extraction of secondary metabolites particularly alkaloids, flavonoids, steroids and terpenoids.

It was estimated that in 1980, the sale of herbal medicines in Europe accounted for 2.25 billion US dollars, which was only 3% of the total sales in European pharma market. In the European market for phytomedicines, Germany has the largest share of 1.5 billion US dollars which was 2.2% of the total market share. The size of the French market of herbal medicine was 0.21 billion dollars which accounts for less than 1% of the European market. The UK market share
was 425 million dollars; however the share of Indian market was negligible, even though we are blessed with a varied emporium of medicinal plants and potential exporter of over 200 drugs and pharmaceuticals. The annual export of herbal drugs is now on the increase, and during the year 1995-96 was Rs. 189.30 crores and is now on the increase, besides the export of 70.03 crore rupees worth of alkaloids (Farooqi and Sreeramu, 2001).

In recent decades, the overexploitation of these precious commodities has created a demand for these herbs in the market. The commercial medicinal plant growers started using chemical fertilizers to increase the crop yield. The over-use of these fertilizers changes the chemical nature of plant components, thereby increasing the toxicity of herbal medicines. Such toxic effects of herbal medicines range from allergic reactions to hepatic, renal, neurological and dermatologic problems. Of late, the traditional medical practitioners and growers realized the rising toxicity in plant based medicines due to manuring with chemical fertilizers. (Anuradha et al., 2001).

Hence high concern over the quality of this long-practiced medical trait and its rising demand among the people has made it high time for the environmentalists and conservationists to seek a better way to ensure the availability of these natural resources without residual toxicity in a sustained manner. The implementation of useful conservation strategies may help to put an end to the overexploitation of these uncharted treasures. The only remedy that could be thought of to prevent this traditional art from being extinct is to apply biofertilizers and natural manures to keep up plant health and also to improve
their growth and productivity. In addition to conventional cultivation of medicinal and aromatic plants, recent emphasis is on exploiting useful and appropriate soil microorganisms present in the rhizosphere of medicinal plants (Sen, 1998).

Knowing the effectiveness of AM fungi and other beneficial rhizosphere microorganisms in crop improvement, farmers have started relying on the application of these bioinoculants to crops as a supplement to inorganic fertilizers. But there is only feeble information available on the occurrence and use of these effective microorganisms in medicinal plants in India especially in the state of Tamil Nadu. Kanyakumari district situated in the southern tip of peninsular India is under strategic geographic location and has rich diversity of medicinal plants scattered over the hills and hillocks of the district. However, only a fragmentary investigation on the medicinal plant diversity of various hills and hillocks of Kanyakumari District has been carried out by Gold Jemila (1999), Selvi (2004), Suneerathi (2008) and Beryl Vedha et al., (2008). Also published, data on the AM fungal association in the medicinal plants of Kanyakumari District is not available. Only a cursory report is available on AM fungal association in angiospermic plants of Kodhayar forest by Ganesan et al. (1991).

Hence, the present study was undertaken to survey the AM fungal association in three selected medicinal plants of Kanyakumari District namely *Eclipta prostrata, L.*, (Family-Asteraceae), *Indigofera aspalathoides, Vahl.*, ex DC. and *I. tinctoria, L.*, Family-Leguminosae; SubFamily-Papilionaceae (Fabaceae). The study is also focused on investigating the influence of native
dominant AM fungal species along with plant growth promoting microorganisms on the growth, biochemical characters and antimicrobial potential of these medicinal plants by subjecting them to pot culture.