INTRODUCTION
Plants are the foundation of all life on earth, without which the human being cannot survive. Plants play a vital role in ecosystem development and stability. India has one of world’s richest plant heritages supporting ca. 15,000 species of vascular plants (Anonymous, 2012). The wealth is not only in terms of the number of unique species documented thus far for their uses (Hiremath and Taranath, 2011) but also in terms of the tremendous depth of knowledge about diversity, distribution and ecological status. Western Ghats, one of the World’s 12 mega-biodiversity hotspots, forms nearly a continuous line of mountains towards the west of peninsular India running parallel to the west coast.

Ferns and ferns allies, collectively called as ‘Pteridophytes’ are group of non flowering vascular plants dating back to 360 million years and thus proves to be one of the earliest land encroachers. These are represented by about 305 genera, comprising more than 13,000 extant species all over the world of which about 191 genera and more than 1,000 species have been reported from India (Dixit 1984, Chandra, 2000 and Benniamin et al., 2008).

India is one of the floristically richest countries in terms of pteridophytic flora, particularly ferns due to varied nature of rain fall, temperature and altitudinal variations ranging from sea level to the highest peaks in mountains. Beddome (1873) in his publication entitled, ‘The ferns of Southern India’ has listed the various ferns from Southern India. Nayar and Kaur (1974) in their book entitled, “Companion to Beddome’s Handbook to the ferns of British India” have listed the nomenclatural changes with regard to Beddome’s (1883, 1892) names only. Later, Chandra and Kaur (1987, 1994) have also updated the nomenclature of all the taxa illustrated in Beddome’s Ferns of South India (1863-1864), Ferns of British India (1865-
1870) and Ferns of South & British India (1876). Chandra (1999) investigated inventory and documentation of the Indian fern flora. Phytochemical investigations of the ferns have been studied to a lesser extent as compared to the higher plants.

The pteridophytes play a pivotal role in the structure and function of any ecosystem by supporting soil conservation, moisture balance at micro-ecosystem level and related aspects (Nicholls and Nicholls, 1998). A lot of data was and is being generated on the pteridophytes as a result of classical studies like cytology, morphology, anatomy and palynology while applicative studies like phytochemistry, medicinal values, antioxidant potential, chemical profile, biotechnological applications, etc. over time. The studies hold a good share of knowledge on the applicative aspects of the ferns and fern – allies which is of prime importance in human welfare in context of medicinal and nutritional values. But very less is worked out in respect of the systematic studies of the ferns as compared to higher plants.

Ferns and fern allies have engaged the attention of the botanists and horticulturists because of their beauty and graceful foliage. Besides this, these have been successfully used in the past in Ayurvedic, Unani, Siddha, Homeopathic and other preparations. For their use as horticultural plant or in the medicinal preparations, ferns are being removed from their natural shady habitats in the forests (Shaikh and Dongare, 2010). Moreover, these plants are totally uprooted every year in botanical excursions which has resulted in the reduction of the fern flora. There is danger of removal of some species being wiped out without being documented.

Nestled in the foothills of the enchanting Sahyadris (or popularly Western Ghats), Belgaum district enjoys a cool, salubrious climate and is
surrounded by natural beauty in the form of rivers, hills, hillocks and dense evergreen forests. The weather of the district is pleasant, owing to its hilly topography. Summers (April-June) are mildly hot and winters are cool (November-February). It experiences heavy south-western monsoon rains from July to September. It receives as much as 50 inches of rainfall annually, which make the hilly areas of the district to be a heavenly dwelling place for the moisture loving plants viz. bryophytes and pteridophytes.

Belgaum takes the eighth position in forest area among the districts of the Karnataka state. The district has 2,77,973.87 hectares of forest land (Karnataka Forest, 2012) in the two Forest Divisions of Belgaum (consisting the talukas of Belgaum, Bailhongal and Khanapur) and Ghataprabha (consisting the talukas of Gokak, Hukkeri, Parasagad, Ramdurg, Raibag, Chikodi, Athani) making it to be about 14.32% of its total geographical area of the district. With this large area and diversified forests types, Belgaum district attracted my attention to be having a very rich fern diversity which is worth to be documented.

The present investigation is meant to put a light on the most neglected and bypassed aspect of the vascular plants i.e. ferns for documentation, inventorization and systematic studies of the ferns of Belgaum district (Karnataka). The study was undertaken with following objectives

- Survey, collection and documentation of the ferns from Belgaum district.
- Enumeration of the localities of occurrence, mapping and identification and documentation of the ferns of the district.
- Spore morphology of the ferns collected from the region with SEM studies of spores of some ferns from the region.
SCOPE OF RESEARCH

Pteridophytes are an important plant group as they typically maintain relatively inflexible ecological requirements (Brunton, 2012) but unfortunately these are facing problems due to the anthropogenic pressures of habitat destruction due to changed land use patterns, complete eradication for the human use either for medicinal purpose or horticultural needs as well as some natural hazards of competition and weed invasion. The natural populations frequently depend upon changes in their habitats and the ferns and fern allies are under a pressure of being completely wiped out from the natural dwellings. In order to conserve the flora or fauna, the documentation is of prime importance which enriches the knowledge about diversity of the area, the ecological status of the population, threats to the population.

The reports are available only on some common ferns like *Pteris vittata* L. and a water fern *Azolla sp.* for Belgaum district. Ahuja (1958) has worked on the plants of Belgaum and Kolhapur. Naiknaware (1983) reported the occurrence of *Spenomeris chinensis* Bedd. in Belgaum district. According to the BSI activity report (1999), Belgaum, Dharwad, Gadag and Haveri districts of Karnataka are considered as to be under explored in terms of the biodiversity.

There is no authentic documentation, inventorization and systematic studies on the ferns of Belgaum district. The present investigation will provide the fern flora of Belgaum district with an insight to the diversity, distribution, ecological status and spore morphology of the ferns from the area. The key for the identification of ferns of Belgaum district based on the spore morphology is also been worked out.