INTRODUCTION
The nematodes are a highly diverse and successful group of multicellular animals placed at a rather low level of taxonomic hierarchy in the animal kingdom. Of every five animals in this world four are nematodes (Platt, 1994), with high species diversity, 26,642 recorded species (Hugot et al., 2001), their actual number is far beyond this and most conservative estimated put it to be over 500,000 species. They are ubiquitous, may be free-living in marine or freshwaters, soil-inhabiting or parasites of plants and animals. They can be found in every conceivable habitat and occur even in deepest oceans, freezing polar seas, hot-water springs, deserts, frozen Antarctica, etc. Soil dwelling nematodes are usually quite close to the surface, roughly between 10-20 cm deep. Most nematodes live in the interstitial spaces between soil particles or other substratum. Under unfavourable conditions many species are able to suspend their life processes completely surviving extreme drying, heat or cold and return to life with onset of favourable conditions. This is indeed a tribute to their adaptability. The nematodes serve as experimental models for studying molecular and developmental biology (e.g. Caenorhabditis elegans) and are also used as ecological bioindicators because of their role as decomposers of soil organic matter, they influence the vegetation successions and play vital role in soil health. Under field conditions, bacterivore and predatory nematodes are estimated to contribute, directly or indirectly, about 8-19% of nitrogen mineralization in conventional and integrated farming systems respectively (Beare, 1997).

The nematodes of the Order Dorylaimida commonly known as dorylaims are an important group of soil-inhabiting nematodes. They are found all over the world, in all types of soils, in every conceivable habitat and usually dominate, both in number and in species, over other soil-inhabiting nematodes. It is not unusual to find five or six sometimes more, dorylaims species representing as many genera in a single soil
sample. These nematodes are easily recognized by their apparently smooth cuticle, usually dagger-shaped feeding apparatus, bottle-shaped or bipartite pharynx and absence of bursa in males. These nematodes possess highly diversified feeding apparatus which reflects their varied feeding habits. Except for a few genera, the feeding habits of majority of the species are not known but could well be ascertained by studying the nature of their feeding apparatus. The members of the superfamily Longidoroidae are important plant parasites, feed on the plant roots by their long, attenuated spear (*Longidorus, Xiphinema* etc); some of these also act as vectors of soil-borne viral diseases of the plants, while there are many which are considered suspected plant parasites because their feeding apparatus seems quite appropriate for phytoparasitism (*Californidorus, Enchodelus, Longidorella* etc). The members of the superfamilies Nygolaimoidea and Actinolaimoidea and some species of the Dorylaimoidea are predatory in habit (Thorne, 1930; Linford and Oliviera, 1937; Esser, 1963; Wyss and Grootaert, 1977) and may be helpful in biological control of plant parasitic nematodes. There are still others which feed on fungal/algal hyphae (such as *Tylencholaimus, Leptonchus*, etc.) (Okada *et al.*, 2005). The feeding habits of the members of the superfamily Belondiroidea though not known but the nature of their feeding apparatus is indicative of fungal/hyphal feeding. Yeates *et al.*, (1993), however grouped them under plant-feeding which is most unlikely.

The history of dorylaim nematodes dates back to 1845 when Dujardin described *Dorylaimus* with *Dorylaimus stagnalis* as the type species. De Man (1876) proposed the family Dorylaimidae for *Dorylaimus* Dujardin, 1845. Orley (1880) added *Tylencholaimus, Diplolaimus* and *Ironus*, while De Man (1880) proposed *Alaimus, Diphtherophora* and *Tylolaimophorus*. Cobb (1913) added several subgenera and genera, viz., *Actinolaimus, Antholaimus, Discolaimus, Dorylaimellus, Nygolaimus,*
Oionchus, Trichodorus and Xiphinema under Dorylaimidae. Later, in 1920, he described Doryllium, Campyadora, Axonchium and Leptonchus. Filipjev (1927) initially recognized only a single subfamily Dorylaiminae under Dorylaimidae but later (1929) added three more subfamilies, viz., Alaiminae, Ironinae and Tylencholaiminae under this family. Thorne (1934) raised Dorylaimidae to the rank of a superfamily Dorylaimoidea with families Dorylaimidae and Alaimidae. Under Dorylaimidae, he (i.e.) proposed the subfamilies Longidorinae and Nygolaiminae. Thorne (1935) further added the families Leptonchidae and Diphtherophoridae to Dorylaimoidea. Pearse (1936) raised the superfamily Dorylaimoidea to the rank of a suborder Dorylaimina and placed it under the order Enoplida.

Thorne and Swanger (1936) and Thorne (1939) in their historical monographs grouped dorylaims under five families, viz., Dorylaimidae, Leptonchidae, Diphtherophoridae, Alaimidae and a new family Belondiridae and also described and illustrated numerous genera and species. Thorne (1939) proposed the family Belondiridae for those dorylaims which are characterized by the presence of a thick sheath of spiral muscles around the basal expanded part of phaynx and included under it the genera Axonchium Cobb, 1920 and four new genera, viz., Belondira, Oxydirus, Swangeria and Nygellus. Loos (1949) added a new genus, Nygolaimellus, to this group while Clark (1961) shifted Nygellus Thorne, 1939 and Nygolaimellus Loos, 1949 to Nygolaimidae Thorne, 1939. Goodey (1963) followed the classification of Clark (1961). Jairajpuri (1964) proposed three new subfamilies, viz., Belondirinae, Swangeriinae and Dorylaimellinae under Belondiridae and a new family Nygellidae for Nygellus and Nygolaimellus. Thorne (1964) raised Belondiridae to the rank of a superfamily and included under it six families, viz., Belondiridae, Dorylaimellidae, Roqueidae, Oxydiridae, Mydonomidae and Nygellidae. He (i.e.) also proposed four
new genera, viz., *Belondirella, Yunqueus, Roqueus* and *Mydonomus*, and assigned them to different families of Belondiroidea. Yeates (1967) did not recognize Belondiroidea and considered Belondiridae and Nygellidae junior synonyms of Dorylaimidae and Nygolaimidae respectively. Siddiqi (1968) recognized Belondiroidea and included eight families viz., Belondiridae, Roqueidae, Oxydiridae, Mydonomidae, Axonchiidae, Swangeriidae, Falcihastidae and Nygolaimellidae under it. He synonymised Dorylaimellidae and Nygellidae with Belondiridae and Nygolaimellidae respectively. Ferris (1971) followed Siddiqi’s classification but regarded Dorylaimellidae and Nygellidae as valid families. Ferris and Ferris (1973) proposed a new genus *Lindseyus* to the superfamily Belondiroidea under the family Roqueidae. Yeates (1973) accepted Mydonomidae and Falcihastidae and proposed two genera, viz., *Mitoaxonchium* and *Helicobelondira*, under Belondiridae and Mydonomidae respectively. Nesterov (1976) proposed a new genus *Laurophragus* under the family Axonchiidae. Nair and Coomans (1973-74) and Mulk, Coomans and Baqri (1978) did not recognize Belondiroidea, considering it to be a family of Dorylaimoidea. Coomans and Nair (1975) proposed nine subgenera under the genus *Axonchium*, viz., *Axonchium, Metaxonchium, Epaxonchium, Discaxonchium, Dactyloaxonchium, Hypaxonchium, Poraxonchium, Heymaxonchium* and *Syncheilaxonchium*. Andrássy (1976) recognized Belondiroidea with five families, viz., Belondiridae, Swangeriidae, Oxydiridae, Dorylaimellidae and Roqueidae. He (i.e.) demoted Axonchiidae and Falcihastidae to subfamilial ranks under Belondiridae and Swangeriidae respectively and shifted *Mydonomus* to Dorylaimoididae and *Bullaenema* to Tylencholaimidae. Jairajpuri and Ahmad (1979) proposed the genus *Paraoxydirus* and in 1980, they recognised only three families, viz., Belondiridae, Dorylaimellidae and Swangeriidae and two subfamilies Swangeriinae and Roqueinae

Qudsiella and Falcihasta under a single subfamily Swangeriinae on the basis of elongate cardia with three tribes, viz., Swangeriini n.rank for the genera Swangeria and Qudsiella, Falcihastini n.rank for the single genus Falcihasta and Roqueini for Roqueus and Lindseyus. Rahman, Jairajpuri, Ahmad and Ahmad (1986) proposed a new genus Amphibelondira characterized by having a non-constricted pharyngeal expansion and absence of ventromedian supplements.


The various genera presently included under Belondiroidea constitute a very diverse group. The presence of spiral muscular sheath enclosing the expanded part of
pharynx and a narrow lip region are only the two important diagnostic characters of this group. However, in the genera *Belaxellus, Durinema* and *Yubeldus* the lip region is not narrow, the muscular sheath is sometimes very thin (*Durinema, Yubeldus, Porternema, Bullaenema* and others) or even absent (*Paraqudsiella, Durietta*) and hence Jairajpuri and Ahmad (1992) rightly placed these genera under Belondiroidea with a question mark. On the other hand spiral muscular sheath, similar to that of belondirids, is also present in *Nygellus, Nygolaimellus*, while a thin muscular sheath may also be present in discolaimids. It is because of this heterogeneity in the group that Nair and Coomans (1973, 74) and Mulk, Coomans and Baqri (1978) doubted the validity of Belodiroidea and accepted the group as a family only. However Ferris *et al.*, (1993), Jairajpuri and Ahmad (1992), De Ley and Blaxter (2002) accepted this group representing a superfamily Belondiroidea. Further De Lay and Blaxter (2004) proposed a new classification for the phylum Nematoda, based primarily on phylogenetic hypothesis resulting from small subunit ribosomal DNA (SSU rDNA) sequence analysis and considered Belondiroidea as a superfamily. Pena Santiago (2006) in a recent classification also accepted Belondiroidea as a superfamily with a single family Belondiridae with three subfamilies Belondirinae Thorne, 1939; Dorylaimellinae Jairajpuri, 1964 and Swangeriinae Jairajpuri, 1964.

During the course of present work samples were collected from India as well as procured from other parts of the world. Some preserved as well as mounted specimens were kindly provided by my supervisor Prof. Wasim Ahmad which he collected from several countries (Japan, Singapore and Coasta Rica) or received from his collaborators in Germany and Japan. The specimens from New Zealand and Nicaragua were kindly provided by Dr. D. Sturhan of the Institut für Nematologie,
Münster, Germany. In India, the samples were mainly collected from Uttar Pradesh, Jammu and Kashmir and North-eastern states for isolation of belondirid nematodes.

A total of 40 species belonging to the superfamily Belondiroidea have been described and illustrated. Out of these fifteen are new to science, four are reported for the first time from India. These are grouped under three subfamilies and eight genera. Diagnosis of the superfamily, family, subfamilies and genera have been provided. Identification keys to the subfamilies; genera and species is also provided.

Three new species of the genus viz., *Axonchium sturhani*, *Axonchium parassaculum* and *Axonchium zealandicum* from New Zealand have already been published and are being included as appendix.