This thesis summarizes work done by the candidate on, “study of plant parasitic Nematode in fig (Ficus carica)”. The Thesis comprises of three parts, first part deal with Taxonomy, second deal with physicochemical parameter with correlation of nematode population and third part deal with community analysis of nematode.

**Part I :**

Taxonomy of nematodes belonging to the three Order Tylenchida, Doryloimida and monochida were studied followed by seven Family

1) Tylenchidae
2) Pratylenchidae
3) Hopoloiimidae
4) Aprocrellaidae
5) Xiphinematidae
6) Longidiridae
7) Mylenchulidae

The species belonging to 8 sub family which are Tylenchinae, Hopolaiminae, Pratylenchinae, Rotylenchoidinae, Aprocelaiminae, Neotylenchidinae, Xiphinematinae, Longidorinae and Mylenchulinae. Eighteen (18) Species belonging to Thirteen (13) genera were identifiend among them Aprocelliamellus were first time recorded in Aurangabad. Among Tylenchida, Tylenchus ritai, Pratylenches hamatus, Helicotylenchus dihystera, Helicotylenchus incises, Scutellonema brachyrum, Scutellonema brachyrum, Rotylenchus orientalis, Pratylenches ratensis, Sakia alii, Sakia nandavanii, Aorolaimus helices were recorded. Among Doryloimoids Aporcelaimellus ohscurus, Aporcelaimellus simplex, Xiphinema index, Xiphinema basiri, Xiphinema burchnica, Longidorus macrosoma were found and from Monochid only one genera of Mylenchullus recorded from different target sites.
Part II:

Physico chemical character of the soil of target sites were studied, the color of soil of all sites was black. The texture of site I and site II were sandy loam and site III and site IV were sandy clay. The average soil Temperature were ranges from 20°C -25°C, the maximum temperature were recorded in the month of May (25°C) and minimum soil temperature recorded in month December. The soil moisture ranges from 13.00 to 47, the highest soil moisture were observed in the month of December in the site I during the year of 2013-14, whereas the minimum soil moisture were 13°C recorded in the month of may in site I during the year 2013-14 and in the site II during the year 2014-15. The pH ranges from 6 to 8, in site I, the pH varies from 6.3-6.6 in site II, in site III the pH varies from 7.3-7.9, in site IV the pH varies from 6.3-6.6. The calcium carbonate ranges from 3.38 to 3.74, in site I it is 3.74, in site II 3.54, in site III 3.38, in site IV it is 3.47.

This chapter continues with population fluctuation with environmental factor, according to result indicates the rain fall and moisture play important role in population fluctuation of nematode the higher the moisture lowers the population of tylenchids and Dorylaimids where as monochids positive correlation with moisture. All nematodes gave positive correlation with soil PH except monochids in site III gave negative correlation. All nematodes gave positive correlation with soil temperature except monochids in site II, III gave negative correlation. Tylenchids gave negative correlation with rain fall where as monochids and Doryloimides gave positive correlation.

Part III:

For community analysis, soil samples were collected for a consecutive period of two years (2013-2015) to provide information about absolute frequency, relative frequency, relative density, relative biomass, prominence value and importance value.

Eighteen frequently encountered nematode genera were identified. Average results of the three years revealed that Rotylenches had highest absolute frequency (80%)
in first year *Longidorus* (88) and *Xiphinema* (90) in second year while *Mylenchulu* (8) has the lowest value. The relative frequency shows an average value ranging from 8-18. *Longidorus spp* has the highest percentage of relative density (11.47) while the least is shown by *Mylenchulus* (2.9). In terms of prominence value *Longidorus* had highest prominence value (178.66) and *Mylenchulus* had lowest prominence value (8.48)

Among the tylenchid nematodes, *Helicotylenchus* sp. is the most populous and economically important nematode, followed by *Scutellonema* spp. while among the dorylaimids, *Longidorus* spp is most common and populous followed by *Xiphinema* spp. while *Aprocelaimellus* spp. is the least common.

Among the species of Hoplolaimidae studied *Helicotylenchus* was the most populous species. The most commonly encountered genera is *Longidorus* spp (11.47) followed by *Rotylenches* (10.20), *Pratylenches* (8.9), *hopolaimus* (9.89) *Scutellonema* (9.60), *Helicotylenchus* (8.04), *Aerollaimus* spp (7.97), *Sakia* spp (7.27), *Xiphinema* spp (6.71), *Aprocelaimellus* (6.58), *Mylenchulus* (5.80)