CHAPTER XVII

SUMMARY
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The thesis embodies the results of the survey of Rewa district for Animal and plant parasitic nematodes carried out by the author during the session 1993-1994. The animal parasitic nematodes were collected from the Fishes, Amphibia, Reptilia and Mammals. The survey of one hundred six animal host of twenty three species belonging three species of fishes, three amphibia, seven reptiles, six birds and four mammals were performed.

The plant parasitic nematodes were recovered from 250 ml soil and root samples of common vegetable, cereal and ornamental plants. The host plants belonging to five families of Moncotyledons, Eighteen families of Dicotyledons and two families of non-flowering plants. In all twenty six genera and twenty nine species of host plants were surveyed.

Several known and unknown forms of animal and plant parasitic nematodes were obtained from these hosts. But only three new forms and two old forms from animal and from the plant only five new forms and two old forms have been described in the thesis.
SECTION - A

ANIMAL PARASITIC NEMATODES

Section A deals with the Nematodes parasites of Fishes, Amphibia, Reptiles, Aves and Mammals.

ORDER - SPIRURIDEA Deising, 1961

Family - Camallanidae Railliet et Henry, 1915

Genus - Procamallanus, Baylis, 1923.

Procamallanus chauhanensis n.sp. has been described from stomach of Mystus seenghala collected from the Lalpa Talab Rewa.

Genus - Camallanus Railliet et Henry, 1915


Camallanus thaparansis n.sp. has been recovered from intestine of Rana cynaphlectis collected from the river Tomus at Chakghat Rewa.

ORDER - ASCARIDIDEA n.ord. For Ascaroidea Railliet et Henry, 1915

Family - Ascarididae Blanchard, 1849

Sub family - Ascaridinae Wane, 1922 For Ascarinae Travassos, 1913.

Genus - Ophidascaris Baylis, 1921.
Ophidascaris ajgaris Khera, 1956 has been redescribed from the body cavity of Python molurus collected from the campus of Govt. Model Science College, Rewa.

ORDER - SPIRURIDEA Diesing, 1861

Family - Thelaziidae Skrjabin, 1915
Subfamily - Oxyspirurinae Skrjabin, 1916
Genus - Oxyspirura Drasche in Stoss, 1897

Oxyspirura mehransis n.sp. has been described from the intestine of Bubulcus ibis (Linn.) collected from Housing Board Colony, Bodabag, Rewa.

ORDER - STRONGYLIDEA Diesing, 1851

Family - Ancylostomatidae Nicoll, 1927
Subfamily - Bunostominae Loss, 1911
Syn. Necatorinae Lane, 1917.
Genus - Arthrocephalus Ortlepp, 1925.

Arthrocephalus herpestis Khera, 1956 has been redescribed from intestine of Herpestis smithii smithii collected from the Kuthulia farm, Rewa.
SECTION - B

PLANT PARASITIC NEMATODES

Section "B" deals with the nematode parasites of plants viz. vegetable, fruit, Doob grass and ornamental plants.

ORDER - TYLENCHIDA (Filipjev, 1934) Thorne, 1949

Family       - Tylenchidae Orley, 1880
Subfamily    - Tylenchinae (Orley, 1880)
              Marcinowski, 1909
Genus        - Tylenchus Baston, 1865

Tylenchus rewansis n.sp. has been described from soil around the rhizosphere of Lady finger, Abelmoschus esculentus, collected from Teonther, Rewa.

Family       - Tylenchorhynchidae (Eliava, 1964)
Genus        - Tylenchorhynchus Cobb, 1913.

Tylenchorhynchus indicus n.sp. has been described from the soil around the root and inside root of Garden Croton, Codiaeum Variegatum. Collected from Bajrang Nagar, Rewa.
Pratylenchidae (Thorne, 1949) Siddiqi, 1963

Pratylenchinae Thorne, 1949

Pratylenchus Filipjev, 1936

Pratylenchus thornensis n.sp. has been described from the rhizosphere of Papaya, Carica papaya Linn. collected from civil lines Rewa.

Hoplolaimidae (Filipjev, 1934) Wieser, 1953

Hoplolaiminae Filipjev, 1934

Hoplolaimus Daday, 1905

Hoplolaimus indicus Sher, 1963 has been redescribed from the soil arround the root of Bean, Dolichos lablab, from Agriculture College Rewa.

Rotylenchinae, Golden, 1971

Helicotylenchus Steiner, 1945

Helicotylenchus jenkinsis n.sp. has been described from root of Doob grass, Cynodon dactylon Pers from Chirahula Colony Rewa.

ORDER - APHELENCHIDA Siddiqi, 1980

Aphelenchoididae (Skarbilovich, 1940) Paramonov, 1953

Seineurinae (Husain & Khan, 1967) Baranovskaya, 1981

Seineura, Fuchs, 1931
Seineura sasseris n.sp. has been described from the rhizosphere of Brinjal, Solanum melongana Linn. collected from Indra Nagar Rewa.

ORDER - DORYLAIMIDA (de Man, 1876) Pearse, 1942

Family - Longidoridae (Thorne, 1935) Meyl, 1961
Subfamily - Xiphinematinae Dalmasso, 1969
Genus - Xiphinema Cobb, 1913

Xiphinema basiri Siddiqi 1959 has been redescribed from the soil around the root of Bougainvillea, Bougainvillea sp. collected from Ratahara Rewa.
Section "C" deals with the Bio-ecology of Tylenchorhynchus sp. The biology of the genus has been studied at room temperature and relative humidity in the month of September and October.

The gravid females were collected from the suspension of potted maize soil. During oviposition, the female body becomes curved into "C" shape.

The eggs were laid in single cell stage with prominent nucleus at centre having kidney shape.

The first cleavage was transverse and the second too, transversely opposite to the first. The fourth cleavage was longitudinal.

At the stage of gastrula the cells are arranged in a sequence with transparent areas. The tadpole seen 4-5 days after oviposition.

The first juvenile stage appeared 4-5 days after oviposition. The head end of embryo, broad, truncated, and hyaline. The tail slightly narrow, bluntly rounded and hyaline at the distal end.
The second juvenile move vigorously inside the egg shell before emergence and pierced the vitelline membrane with the help of stylet, releasing the juvenile.

The third and fourth juvenile increased in length considerably with the growth of different parts of body and thus completing the life cycle in 28-35 days.

For the study of ecology of *Tylenchorhynchus* two main factors, temperature and relative humidity were selected having maize-cowpea and Wheat rotation under field condition.

The *Tylenchorhynchus* exhibite two peaks - one at 17-23°C and other at 28-32°C soil temperature at all depths. The population at lower soil temperature was invariably higher than that of higher soil temperature.

The study of soil relative humidity indicates that the population of *Tylenchorhynchus* increase at 45-52 and 79-80 RH in all the depths. The high population of nematodes was recovered at low soil moisture condition.

The distribution of *Tylenchorhynchus* in the soil having host crops was restricted mostly on 0-10 cm and
10-20 cm soil zone. The juveniles were generally found in the 0-10 cm and 10-20 cm layer. The females are nearly four times more than males but three times less than juveniles.

The number of nematodes increases during February to April and in September-October and decreases during December-January and June to August.

The maximum nematodes recovered from 0-10 cm depth during March and April. The increase in the upper layer was mainly due to the increase in juvenile population.

The increase in the adult population was noticeable from the recovery made from 10-20 cm layer.

There is not much information on seasonal fluctuations in the distribution pattern of *Tylenchorhynchus* under natural conditions. The influence of season on soil nematode was more evident at 0-10 cm depth than deeper layer. There are two peaks—one in April and second in November in this investigation.

The recovery of *Tylenchorhynchus* from different species of host plant from various soil depths indicated that the genera is not only polyphagous but it also
demonstrate that their distribution is mainly restricted between 10-20 cm soil zone corresponding probably to the zone of distribution of tertiary roots.

The nematodes had a seasonal rhythm with minima in winter and summer and maxima in spring and autumn. The seasonal peaks of Tylenchorhynchus correspond to the stage of maximum growth of host crop viz the Rabi (Winter) crops are at maturity during March-April and Kharif (Summer) crop during October-November. Thus seasonal effects were confounded with stage of crop growth.