APHELENCHS
The order Aphelenchida was first erected by Siddiqi (1980) for the reception of all the members of aphelenchs. It was first combined with the order Tylenchida because of its close relationship and resemblance. But, are now categorized under a separate order and can be differentiated from the order Tylenchida in having the oesophageal gland opening in the metacorpus, shape of stylet, oesophageal structure, male without burse or if present, supported by papillary rays and thorn-shaped spicules. They are found in a wide variety of habitats, ranging from an obligate plant parasites to mycophagus and predators. Some members of them even attack the aerial plant parts and others are found around the root tips. Their study and inclusion in this taxonomical study is therefore needed.
The separation of *aphelenchs* as the order Aphelenchida by Siddiqi (1980) was originally agreed and supported by Maggenti (1981). Later in 1983 he again change his view on this. Maggenti, Luc, Raski Fortuner and Geraert (1987) did not approved the work of Siddiqi. According to them aphelenchs should not be in the ordinal level but placed them in the suborder Aphelenchina under the order Tylenchida. Therefore, there were four suborders viz., Tylenchina, Aphelenchina, Sphaerularina and Hexatyline. However, Bajaj (1989) supported Siddiqi's classification and thereby recognised the aphelenchs as the order Aphelenchida. The present work also shares the view of Siddiqi (1980) and followed his classification.

Analysis of soil samples around the roots of sugarcane crop in different localities of Manipur, 3 genera belonging to 2 sub-families, 2 families under one superfamily of the sub-order Aphelenchina of the order Aphelenchida have been reported. All the three genera contains one known species each. Two of them are first record from India. Measurements and localities from where they have been collected are provided.
ORDER APHELENCHIDA SIDDIGI, 1980
SUBORDER APHELENCHINA CARAFFI, 1966
SUPERFAMILY APHELENCHIOIDEA (FUCHS, 1937) THOMPSON, 1949
FAMILY APHELENCHIDAE (FUCHS, 1937) STEINER, 1949
SUBFAMILY APHELENCHINAE (FUCHS, 1937) SCHUSTER & TEUL, 1938
GENUS APHELENCHUS BASTIAN, 1865

Generic characters

Body tapering anteriorly. Cuticle transversely striated though not on head. Lateral fields with about 10 incisures. Head slightly offset stylet without knobs at base. Procorpus cylindrical, constricted where it joins the ovoid oesophageal bulb which contains prominent median, concentric valve plates. Oesophageal glands in a dorsal lobe joining the intestine where the nerve ring surrounds it just posterior to the bulb. Excretory pore opposite to nerve ring. Deirids present at the level of excretory pore. Vulva posterior, ovary prodelphic and outstretched. Post vulval sac present, just over a body-width long. Vagina with thickened walls, sloping forwards from the vulva. Rectum about a body-width long. Tail short, cylindrical to a rounded end. Male with bursa supported by 1 pre-anal, 3 post-anal, subterminal pairs of ribs. Spicules paired, slender, ventrally
slightly arcuate, proximally slightly cephalated. Cubernaculum simple, about one-third as long as the spicules.

Type species: *Aphelenchus avenae* Bastian, 1965

Soil samples analysed during this study, yielded specimens belonging to this type species from different localities of Manipur.

*Aphelenchus avenae* Bastian, 1965

Dimensions

1) Sugarcane, Ukhrul, Manipur population

Females (3): $L = 0.62 - 0.71$ mm, $a = 43.2 - 47.3$, $b = 6.5 - 6.8$, $b' = 3.8 - 4.3$, $c = 32.4 - 35.4$, $c' = 2.0 - 2.4$, $G_1 = 28.2 - 50.4$, $G_2 = 12 - 13$, $V = 77 - 78$, stylet = 11.2 - 12.3 um, nerve ring = 86.4 - 88.0 um from anterior end of body, female reproductive system mono-prodelphic and outstretched, post uterine sac = 50 - 55 um long, vulva - anus distance = 118.4 - 138.3 um long, tail = 19.2 - 20.8 um, ABD = 8.0 - 9.6 um and lateral lines = 10.

Males: Not found.
2] Sugarcane, Nekola, Manipur population

Females (2): $L = 0.60 - 0.68$ mm, $a = 42.0 - 43.5$, $b = 6.0 - 6.5$, $b' = 3.5 - 4.0$, $c = 32.0 - 33.5$, $c' = 2.0 - 2.1$, $c_1 = 28.0 - 30.5$, $c_2 = 10 - 12$, $V = 75 - 78$, stylet = 12 - 13 um, nerve ring = 85 - 88 um from anterior end of body, female reproductive system mono-prodelphic and outstretched, post-uterine sac = 50 - 52 um long, vulva-anus distance = 115.0 - 120.0 um long, tail = 18.0 - 20.0 um, ABD = 2.0 - 3.5 um end lateral lines = 10.

Male: Not found.

Habitat and localities

Detected from soil around roots of sugarcane Saccharum officinarum Linn. from (1) Lambui Village, Ukhrul District, Manipur and (2) Nekola, Imphal District, Manipur.

Remarks

Aphelenchus avenae is a very widely distributed species in the soil samples collected from around roots of sugarcane in Manipur. The present specimens conform well with those dimensions and descriptions given by Bastian, 1965.
FAMILY APHELENCHOIDIDAE (SKARBILOVISH, 1947) PARAMONOV, 1963

SUBFAMILY APHELENCHOIDINAE SAKARBILOVISH, 1947

GENUS PARA SEINURA TIMM, 1961

Generic characters

Body long and slender, often narrowed slightly beyond the vulva and again beyond the anus. Cuticle with fine transverse striae, lateral fields with few incisures. Head somewhat rounded but continuous with body contour, base of each lip appear opaque and cuticularized. Stylet unique in that anterior pointed part is jointed, bottom of stylet shaft slightly thickened, and has no basal knobs. The oesophageal gland lobe is long and prominent. Median bulb is big, ovoid and with prominent valve plates. Vulva posteriorly located with anterior outstretched gonad and short post vulval sac. Male spicules end with prominent rostrum and apex. A small gubernaculum or apophysis present. Tails of both sexes are elongate filiform.

Type species: Paraseinura musicolus Timm, 1961

Soil samples analysed during this study yielded only this type species. Measurements and localities are provided.
PARASEINURA MUSICOLUS TIMM, 1961

Dimensions

Females (6) : $L = 0.44 - 0.54$ mm, $a = 34.5 - 42.3$, $b = 5.4 - 6.1$, $b' = 3.6 - 4.2$, $c = 3.9 - 4.9$, $c' = 14.0 - 15.4$, $g_1 = 16.6 - 23.9$, $g_2 = 0.8 - 0.9$, $V = 64 - 69$, stylet = $12.8 - 13.6$ um, median bulb elliptical with valve plates just behind centre, nerve ring at $59.2 - 62.4$ um from anterior end of body, female reproductive system mono-prodelphic and outstretched, post vulval uterine sac 4.3 um long, tail = $105.6 - 136.0$ um, ABD = $8.0 - 8.3$ um.

Male : Not found.

Habitat and locality

Detected from soil around roots of sugarcane, Saccharum officinarum Linn. from Yumnam Leikai, Imphal district, Manipur.

Remarks

Measurements and descriptions of the present specimens fit well with those given by Timm, 1961. It is a new record from India.
SUBFAMILY APHELENCHOIDINAE SKARBILOVICH, 1947

GENUS **TYLAPHELENCHUS** RUHM, 1956

**Generic characters**

Body small to medium size, often narrowed slightly beyond the vulva and again beyond the anus. Cuticle with fine transverse striae, lateral fields with few incisures. Head offset as 6 equal lips each of which is higher than wide. Stylet 10 – 11 µm long with short anterior part and large offset basal knobs, stylet lumen narrow. Median bulb rounded, barrel-shaped with well – developed, central valves. Oesophageal gland lobe narrow. Vulva posterior, its lips not pre-tubercular, vagina somewhat cuticularized. Female reproductive system mono-prodelphic with post-vulval sac present. Anus and rectum visible. Tails of both sexes conical, ending in 3 small mucrons. Male tail with 1 pre-anal, 1 post-anal pair of papillae and 2 tiny pairs of subterminal glandular papillae. Spicules separate, ventrally curved with a small rostrum and ventral flange.

**Type species**: **Tylaphelenchus leichenicola** Ruhm, 1956

The present study yielded only this type species. Measurements and locality are given.
**TYLAPHLENCUS LEICHENICOLA RUHM, 1956**

**Dimensions**

Females (2): \( L = 0.45 - 0.46, a = 29.0 - 30.0, b = 13.5 - 14.0, b' = 3.0 - 3.5, c = 11.2 - 12.0, c' = 5.0 - 5.2, G_1 = 20.0 - 23.), G_2 = 0.7 - 0.8, V = 67.7 - 68.0, Stylet = 10.0 - 11.2 \( \mu \text{m}, \) median bulb rounded, barrel shaped with well developed, central valves, female reproductive system mono-prodelphic and outstretched, post vulval uterine sac 4.8 \( \mu \text{m} \) long, tail = 40.0 - 41.6 \( \mu \text{m} \), ABD = 8.0 - 8.8 \( \mu \text{m} \).

**Male:** Not found.

**Habitat and locality**

Detected from soil around roots of sugarcane, *Saccharum officinarum* Linn. from Lamlanghupi (Chothe village) Churachandpur District, Manipur.

**Remarks**

It is a very rare specimen collected from around roots of sugarcane in Manipur. The present specimens conform well with those dimensions and descriptions given by Ruhm, 1956 except that the present specimens have a thinner body. It is a new record from India.