Research Article

Checklist of Termites (Blattodea: Isoptera): Southern Haryana

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ABSTRACT

This study is designed with the aim to provide checklist and distribution of termite species (Blattodea: Isoptera) of Southern Haryana. Termite is a seasonally encountered insect so the survey of sample collection has been made during two years (2020; 2021) of study periods. Several morphological parameters have been examined for both soldier as well as worker caste i.e., body color, antennae segments number, head length without mandible, head total length with mandible, head maximum width, body total length from tip of abdomen to the tip of mandibles, body maximum width, tarsal segments and tibial spur. A total of 26 termite species were classified based on the phenotypic features, belonging to 3 families, 4 sub-family and 8 genera. Out of 3 families, Termitidae Latreille, 1802 is the most diverse family comprising 22 species, 6 genera and 3 subfamilies. Out of 26, many termites species i.e., *Angulitermes* sp., *Coptotermes emersoni, C. gestroi, Eremotermes neoparadoxalis, Microcerotermes baluchistanicus, M. newmani, M. raja, Neotermes kemneri, N,* sp 2., and *Odontotermes anamallensis* are stated first time from Southern Haryana probably due to edge effect.

Keywords: Distribution, Taxonomy, Termites, Southern Haryana.

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INTRODUCTION

Termites are so-called unique pedofauna of an ecosystem that are categorized under infra-order Isoptera. Termites facilitate physio-chemical nature of soil by performing the role of bio-decomposers,[1-3] and also trigger movement of microbes by shifting uppermost soil with lowermost at the time of building activities.[4,5] Termites consume cellulose rich woody items that further changed into biofuel.[6,7] Tropical and Africa regions host extreme diversity of termites.[8,9] They colonized 95% of land surface ranged from 50°N to 45°S.[10]

So far, study of termite's biodiversity has been centered on morphological description and analysis where termites display caste system behavior which offers basic information for species identification. This process has been made possible by the presence of defender and winged reproductive castes in termite species.[11,12] A total of 3106 termites species are known from worldwide that are notably classified into lower and higher termites.[13-16] It is important to note that only about 10% of the reported species are reflected as pests.[13,17]

From India, 300 species under 54 genera and 7 family have been documented,[18,19] out of 39 species are fitted into 3 families (Rhinotermitidae, Kalotermitidae and Termitidae) and 11 genera are recorded from Haryana.[15,20] As termites are seasonal insect hence its appearance rate is influenced by favorable rainy season.[21,22] Because this pedo-fauna required optimum water level for its proper development.[23]

Geologically and globally, location of Southern Haryana is applicable for the development of termite's colony. Climatic factors of study site are also favorable for termite's population. As this region is cold in winter (December and January) and hot in summer (May and June) at about 45°C (113°F).[24] Soil of Southern

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Haryana also displays a wide variety representing linear ridges of the Aravalli Ranges with decreasing water level.[25-27] This type of soil may affect termite's occurrence range and provides a chance to evolve higher diversity. All these factors act as center for enhancing species biodiversity in different geographical regions. Therefore, many of termite species are still not documented. Keeping this in view, an attempt has been made to get the current status of termite diversity of Southern Haryana. Main purpose of this study is to document newly found termite species which are not previously verified in Southern Haryana, India.

MATERIALS AND METHODS

Study sites

All termites' samples were assembled from different district of Southern Haryana i.e., Rewari, Mahendragarh, Nuh, Faridabad, Palwal, and Gurugram which are positioned between 28.25° N 76.29° E. Samples were isolated from different feeding habitats including soil mounds, soil within and beneath very rotten logs, dry woody items, and cattle dung cakes, dry grasses, Acacia, Sisam, Peepal, bushes and Neem. At the collection time, samples locality were recorded by applying GPS recorder which detailed time, day, date, latitude, altitude and longitude. For termites specimen preferences was given to certain castes including soldiers and workers.

Identification key

Termite's correct identification was done by compiling certain essential morphometric data.[28,29] A total of 9 parameters were designed for classification up to genus level. Such parameters were:

- Body color,
- Antennae Segments Number (ASN),
- Head Length without Mandible (HL-M),
- Head total Length with Mandible (HL+M),
- Head Maximum Width (HMW),
- Body Total Length from tip of abdomen to the tip of mandibles (TBL),
- Body Maximum Width (BMW),
- Tarsal Segments (TaS),
- Tibial Spur (TiS).

By assessing these different body features with given keys, species can easily be documented.[6]

RESULTS

The checklist of 26 species of three families and four subfamilies reported from southern Haryana along with their distribution are provided here. Among the families, Termitidae Latreille, 1802 is the most diverse family covering of 22 species from three subfamilies (Table 1). The Termitidae family also comprised highest generic diversity (6 genera). Among the genera, *Odontotermes* Holmgren, 1910b of family Termitidae have maximum species diversity (9 species) followed by *Microcerotermes* Silvestri 1901, with 5 species.

Check list of termites of Southern Haryana

Systematic Account:

Family 1: Termitidae

Subfamily 1: Macrotermitinae

Genus 1: *Odontotermes*

1. Odontotermes anamallensis (Holmgren and Holmgren, 1917).

Odontotermes (*Odontotermes*) *anamallensis* Holmgren and Holmgren, 1917: 157–158 (soldier, worker).

Type localities: India: Tamil Nadu: Anamalai Hills, at 4000 ft. and at 3000 ft.

Distribution: India: Madhya Pradesh, Gujarat, Tamil Nadu, Karnataka, Kerala, and Andhra Pradesh.[30-32]

2. *Odontotermes assmuthi* (Holmgren, 1913).

Odontotermes (*Odontotermes*) *assmuthi* Holmgren, 1913b: 112–113 (soldier, worker).

Type locality: India: Maharashtra: Borivali Jungle near Bombay.

Distribution: India: Assam, Gujarat, Kerala, Jammu and Kashmir, Bihar, Karnataka, Maharashtra, Madhya Pradesh, Punjab, Manipur, Tamil Nadu, West Bengal, Orrisa, Uttar Bangladesh; Pakistan.[20,30-32]

3. *Odontotermes feae* (Wasmann, 1896).

Odontotermes feae Wasmann, 1896b: 625–626 (soldier, worker).

Type locality: Myanmar: Carin Chebà, 900–1100 m.

Distribution: India: Andhra Pradesh, Bihar, Arunachal Pradesh, West Bengal, Madhya Pradesh, Goa, Daman, Haryana, Assam, Kerala, Gujarat, Karnataka, Manipur, Meghalaya, Mizoram, Maharashtra, Orissa, Himachal Pradesh, Rajasthan, Nagaland, Tamil Nadu, Punjab, Tripura, Uttar Pradesh,; Thailand; Nepal; Myanmar (Burma); Bhutan; Bangladesh; Sri Lanka; Vietnam.[20,30-32]

4. *Odontotermes giriensis* (Roonwal and Chhotani, 1962).

Odontotermes giriensis Roonwal and Chhotani, 1962a: 341– 345 (soldier, worker).

Type locality: India: Assam: Garo Hills District: Rongrengiri [25°30'N, 90°30'E].

Distribution: India: Delhi, Haryana, Gujarat, Assam, Sikkim, Manipur, Jammu and Kashmir, Uttar Pradesh,

Table 1: List of termite species of Southern Haryana.

FAMILY	Termitidae							2. Rhinotermitidae	3. Kalotermitidae
SUB-FAMILY	Amitermitinae			b. Termitinae	c. Macrotermitinae			d. Coptotermitinae	-
GENUS	*Microcerotermes*	*Eremotermes*	*Amitermes*	*Angulitermes*	*Odontotermes*	*Microtermes*		*Coptotermes*	*Neotermes*
SPECIES	*M. baluchistanicus*	*E. paradoxalis*	*A. belli*	*Angulitermes sp.*	*O. anamallensis*	*M. obesi*		*C. emersoni*	*N. kemneri*
	M. beesoni								
	M. cameroni	*E. neoparadoxalis*			*O. assmuthi*			*C. gestroi*	
	M. newmani				*O. feae*	*M. mycophagus*		*C. heimi*	*N. krishnai*
	M. raja				*O. giriensis*			*C. kishori*	
					O. guptai				
					O. gurdaspurensis				
					O. obesus				
					O. parvidens				
					O. redemanni				

Rajasthan, Meghalaya, Orissa, Punjab, Arunachal Pradesh, Tripura; Tibet; Bhutan; China; Bangladesh.[20,30-33]

5. *Odontotermes guptai* (Roonwal and Bose, 1961).

Odontotermes bellahunisensis guptai Roonwal and Bose, 1961: 588–593 (soldier, worker).

Type locality: India: Rajasthan: Nagaur District, near Gudha Village, near Sambhar Lake [approx. 26°55'N, 75°25'E].

Distribution: India: Haryana, Gujarat,Himachal Pradesh, Bihar, Assam, Maharashtra, Orrisa, Madhya Pradesh, Jammu and Kashmir, Punjab, Rajasthan, Kerala, Uttar Pradesh; Pakistan, Bangladesh.[20,30-32]

6. *Odontotermes gurdaspurensis* (Holmgren and Holmgren, 1917).

Odontotermes (*Cyclotermes*) *obesus gurdaspurensis* Holmgren and Holmgren, 1917: 149–150 (imago, soldier, worker).

Type locality: India: Punjab: Gurdaspur.

Distribution: India: Gujarat, Himachal Pradesh, Madhya Pradesh, Jammu and Kashmir, Haryana, Maharashtra, Rajasthan; Punjab, Uttar Pradesh, West Bengal, Utterakhand; Pakistan.[20,30-33]

7. *Odontotermes obesus* (Rambur, 1842).

Termes obesus Rambur, 1842: 304 (imago).

Type locality: India: "Bombay."

Distribution: India: Delhi, Assam, Rajasthan, Andhra Pradesh, Himachal Pradesh, Bihar, Haryana, Jammu and Kashmir, Karnataka, Tripura, Kerala, Manipur, Maharashtra, Meghalaya, Madhya Pradesh, Orissa, Uttar Pradesh, Punjab, Uttarakhand, Gujarat, Tamil Nadu, West Bengal; Myanmar; Bangladesh; Pakistan; Tibet; Bhutan; China.[20,30-33]

8. *Odontotermes parvidens* (Holmgren and Holmgren, 1917).

Odontotermes (*Odontotermes*) *parvidens* Holmgren and Holmgren, 1917: 154 (soldier, worker).

Type localities: India: Karnataka: on road from Mysore to Mercara, Punjab: Gurdaspur District: Dhar, Assam: Gauhati: Kamakhya Hill, Gauhati Town; Bangladesh: Noakhali District: Chaumahani.

Distribution: India: Punjab, Himachal Pradesh, Harayana, Manipur, Jammu and Kashmir, Karnataka, Uttarakhand, Uttar Pradesh, Assam, Rajasthan, Sikkim, West Bengal; Bhutan; Myanmar; Pakistan; Bangladesh.[20,30-32]

9. *Odontotermes redemanni* (Wasmann, 1893).

Odontotermes redemanni Wasmann, 1893: 239–242 (imago, soldier, worker).

Type locality: Sri Lanka (Ceylon): Colombo.

Distribution: India: Haryana, Madhya Pradesh, Gujarat, Andhra Pradesh, Jammu and Kashmir, Karnataka, Tamil Nadu, Kerala, Tripura, Orissa, Bihar, Punjab, Himachal Pradesh, Rajasthan, Uttar Pradesh, Maharashtra, Uttarakhand, West Bengal; Bangladesh; Sri lanka.[20,30-33]

Genus 2: *Microtermes*

10. *Microtermes mycophagus* (Desneux, 1906).

Microtermes mycophagus Desneux, 1906: 348–352 (imago, soldier, worker).

Type locality: Pakistan: Sind: Karachi.

Distribution: India: Haryana, Delhi, Rajasthan, Gujarat, Punjab; Iran; Pakistan: Baluchistan.[20,30-33]

11. *Microtermes obesi* Holmgren, 1912.

Microtermes obesi Holmgren, 1912a: 787–788 (imago).

Type locality: India: Maharashtra: Khandala.

Distribution: India: Haryana, Delhi, Assam, Andhra Pradesh, Bihar, Jammu and Kashmir, Gujarat, Gujarat, Karnataka, Kerala, Tamil Nadu, Madhya Pradesh, Orissa, Meghalaya, Punjab, Nagaland, Maharashtra, West Bengal, Rajasthan, Himachal Pradesh, Sikkim, Tripura, Sri Lanka; Uttar Pradesh; Pakistan; Bhutan; Vietnam; Malaysia; Iran; Cambodia; Thailand; Baluchistan; Bangladesh; Myanmar; Kampuchae.[20,30-33]

Subfamily 4: Amitermitinae

Genus 1: *Amitermes*

12. *Amitermes belli* (Desneux, 1906a).

Termes belli Desneux, 1906a: 352–354 (imago, soldier, worker).

Type locality: Pakistan: Sind: Karachi

Distribution: India: Haryana, Delhi, Himanchal Pradesh, Rajasthan, Madhya Pradesh, Gujarat; Pakistan: Baluchistan; Iran.[20,30,31,33-35]

Genus 2: *Eremotermes*

13. *Eremotermes paradoxalis* (Holmgren, 1912).

Eremotermes paradoxalis Holmgren, 1912: 95 (soldier).

Type locality: India: Karnataka: Bangalore

Distribution: India: Bihar, Andhra Pradesh, Delhi, Madhya Pradesh, Karnataka, Gujarat, Rajasthan, Tamil Nadu, Punjab; Pakistan.[20,30,31,34]

14. *Eremotermes neoparadoxalis* (Ahmad, 1955b).

Eremotermes neoparadoxalis Ahmad, 1955b: 252–253 (soldier, worker).

Type locality: Pakistan: Sind: Shahdadpur

Distribution: India: Delhi, Rajasthan, Gujarat; Pakistan.[30,31,34]

Genus 3: *Microcerotermes*

15. *Microcerotermes baluchistanicus* (Ahmad, 1955b).

Microcerotermes baluchistanicus Ahmad, 1955b: 243–245 (imago, soldier, worker).

Type locality: Pakistan: Baluchistan: Zhob District: Fort Sandeman.

Distribution: India: Rajasthan; Punjab: Sind; Pakistan: Baluchistan.[30,34]

16. *Microcerotermes beesoni* (Snyder, 1933).

Microcerotermes beesoni Snyder, 1933b: 12–14 (imago).

Type locality: India: Uttarakhand: Haldwani: Chakrata Range.

Distribution: India: Haryana, Delhi, Assam, Gujarat, Madhya Pradesh, Punjab, Sikkim, Kerala, Orissa, Uttar Pradesh, Uttarakhand, West Bengal; Bangladesh; Bhutan; Pakistan.[20,30,31,33,34]

17. *Microcerotermes cameroni* (Snyder, 1934).

Microcerotermes cameroni Snyder, 1934a: 21–22 (imago, soldier, worker).

Type locality: India: Tamil Nadu: Madras: North Vellore District.

Distribution: India: Gujarat, Kerala, Madhya Pradesh, Sikkim, Karnataka, Tamil Nadu, West Bengal, Andhra Pradesh, Daman.[20,30,31,34]

18. *Microcerotermes newmani* (Hill, 1927a).

Microcerotermes newmani Hill, 1927a: 78–81 (imago, soldier, worker).

Type locality: Australia: Western Australia: Mundaring.

Distribution: Australian Region—Australia: Western Australia, South Australia.[30,34]

19. *Microcerotermes raja* (Roonwal and Bose, 1964).

Microcerotermes championi raja Roonwal and Bose, 1964: 2628 (soldier, worker).

Type locality: India: Rajasthan, ca. 10 km NE Jodhpur, Balsamand [ca. 26°18'N, 73°04'E]

Distribution: India: Rajasthan.[30,31,34]

Subfamily 4: Termitinae

Genus 1: *Angulitermes*

20. *Angulitermes akhorisainensis* (Chatterjee and Thakur, 1964b).

Angulitermes akhorisainensis Chatterjee and Thakur, 1964b: 346–353 (imago, soldier, worker).

Type locality: India: Uttarakhand: Tehri Garhwal Forest Division: Tehri Range: Akhorisain block, 7000 feet.

Distribution: India: Uttarakhand.[30,34]

Family 2: Kalotermitidae

Genus 1: *Neotermes*

21. *Neotermes kemneri* (Roonwal and Sen-Sarma, 1960).
Neotermes kemneri Roonwal and Sen-Sarma, 1960: 188–190 (soldier, pseudoworker).
Type locality: Sri Lanka: Peradeniya: Gannoruwa.
Distribution: Sri Lanka.[36,37]

22. *Neotermes krishnai* (Bose, 1984).
Neotermes krishnai Bose, 1984: 23, 41–45 (soldier, pseudoworker).
Type locality: India: Tamil Nadu: Salem
Distribution: India: Tamil Nadu.[36,37]
Family 2: Rhinotermitidae
Subfamily 2: Coptotermitinae
Genus 1: *Coptotermes*

23. *Coptotermes emersoni* (Ahmad, 1953b).
Coptotermes emersoni Ahmad, 1953b: 37–38 (soldier).
Type locality: Sri Lanka (Celyon): Colombo.
Distribution: Sri Lanka, China.[36,38,39]

24. *Coptotermes gestroi* (Wasmann, 1896b).
Termes (*Coptotermes*) *gestroi* Wasmann, 1896b: 629 (soldier).
Type locality: Myanmar: Bhamo.
Distribution: Ethiopian Region: Mauritius, Réunion, Madagascar. Nearctic Region: USA: Ohio: intercepted, Florida: introduced. Neotropical Region: São Paulo; Brazil: Rio de Janeiro, Cayman Islands; Barbados; Antigua; Cuba, Jamaica; Grand Turk and Provindenciales; Mexico; Montserrat; Puerto Rico. Oriental Region: Guangdong, Hainan, Bangladesh; China: Yunnan; India: Sikkim, Meghalaya, Assam, Nicobar Islands, Tripura, Andaman Islands, Orissa, West Bengal; Malaysia: Mainland, Kalimantan; Indonesia: Java, Myanmar; Sarawak; Taiwan; Sri Lanka; Thailand. Papuan Region: Marquesas Islands: French Polynesia.[36,39]

25. *Coptotermes heimi* (Wasmann, 1902).
Coptotermes heimi Wasmann, 1902d: 104 (imago).
Distribution: India: Haryana, Rajasthan, Gujarat, Andaman Islands, Uttar Pradesh, Delhi, Kerala, Jammu and Kashmir, Karnataka, Andhra Pradesh, Bihar, Daman, Assam, Himachal, Madhya Pradesh, Punjab, Tamil Nadu, Maharashtra, Orissa, West Bengal; Pakistan; Bhutan; Bangladesh; Oman; Indonesia: Nepal; Java; Pakistan: Baluchistan.[20,31,36,39]

26. *Coptotermes kishori* (Roonwal and Chhotani, 1962).
Coptotermes kishori Roonwal and Chhotani, 1962a: 57– 61 (soldier, pseudoworker).
Distribution: India: Haryana, Assam, Kerala, West Bengal, Tripura, Gujarat, Madhya Pradesh Rajasthan.[20,31,36,39]

DISCUSSION

During the present study, a total of 26 species under three families (Termitidae, Rhinotermitidae and Kalotermitidae), four sub-families (Amitermitinae, Macrotermitinae, Termitinae and Coptotermitinae), and eight genera (*Amitermes, Eremotermes, Microcerotermes, Odontotermes, Microtermes, Angulitermes, Coptotermes,* and *Neotermes)* were reported from Southern Haryana. Out of 26 species, *Coptotermes emersoni, C. gestroi, Angulitermes* sp., *Eremotermes neoparadoxalis, Microcerotermes baluchistanicus, M. newmani, M. raja, Neotermes kemneri, N,* sp 2., and *Odontotermes anamallensis* are reported first time from this area. This may be due to the little work has been done on termites in Haryana.[20,28,33,46,47] The distribution of many of these identified species is still unstated.

There are 3106 termite species under 12 families have been identified globally, and they can be distinguished into lower and higher termites.[13-16,37,43] Out of 12 families, 11 (Cratomastotermitidae, Mastotermitidae, Kalotermitidae, Hodotermitidae, Termopsidae, Archotermopsidae, Stolotermitidae, Archeorhinotermitidae, Stylotermitidae, Rhinotermitidae and Serritermitidae) comes under lower (primitive) termites and Termitidae comes under higher termites.[37,43,48-51] From the Indian subcontinent 337 species and from India, around 300 species were identified.[17,37,52,53] This contributed to around 9.7% of the world's termite population.[37]

The first work on Haryana termites was done by[40] reported 11 species. Later on[41] reported 19 species under 2 families and 10 genera. In 2007, the species number became 20 under 3 families and 10 genera.[42] From Hisar, 15 species are reported under 2 families and 6 genera.[33] The termite diversity is quite abundant in the Kurukshetra university campus as 11 species under 2 families and 4 genera were reported from Kurukshetra

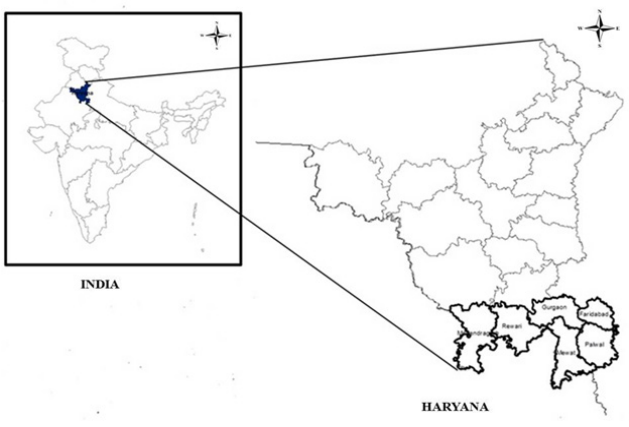

Figure 1: Map of study area.

University.[6] Hereafter, the number of termites at Kurukshetra University increased by 17 belonging to 5 genera, 4 subfamilies, and 2 families (Termitidae and Rhinotermitidae).[28] In 2019, 37 species under 3 families (Rhinotermitidae, Kalotermitidae and Termitidae) and 11 genera were recognized and categorized from Haryana.[20] Eventually, 2 new species were reported by[46,47] from Haryana, hence a total of 39 species are documented from Haryana state. This diversity denoted 7.69% of the total Indian termites.[47]

In this study, more than half (77%) of the termite species are recorded belonging to the Termitidae family, 42.3% in the subfamily Macrotermitinae and 35% in the genus *Odontotermes* (Figure 2 a,b,c). Hence, among the studied families, Termitidae family is the most dominant family of Southern Haryana comprised 22 termites from 3 subfamilies. These results support the records of previous studies that the family Termitidae is the predominant family comprising highest termite's diversity.[28,44,45] According to[18,36] Termitidae family was also the most diverse family comprising of 4 subfamilies and 145 genera. A similar finding was reported by,[54] who stated the family Termitidae is the main Isopteran family covering 2072 species belonging to 238 genera.

Where, among the four reported subfamilies, Macrotermitinae show the highest species diversity (11). These results support the records of previous studies.[28,44,45,55] reported that Macrotermitinae is the predominant subfamily among the others that covered the highest species diversity. The subfamily Macrotermitinae contains around 330 species under 14 genera.[56-58] Within the subfamily Macrotermitinae, the genus *Microtermes* and *Odontotermes* comprise 17% and 54% of the total termite species respectively.[54,59] These results broadly support our findings where at genera level *Odontotermes* was the most diverse genus with 9 species. Globally, around 200 species belonging to *Odontotermes* make up the majority of the Macrotermitinae subfamily whereas only 41 species of this genus were documented from India region.[18,30,37,57,60-62]

A list by[6,20] also specified that *Odontotermes* represented a single genus comprising a large number of species. However, in species encountering numbers, *Amitermes belli, M. mycophagus, M. obesi, O. obesus* and *Coptotermes* species were the common species that scattered everywhere in study sites with an 80% appearance rate. Our findings were broadly consistent with those of[6,18,28,63-65] who found species *O. obesus* and *M. obesi* was the most dominant species in their respective study area. Similarly[66,67] stated that *M. obesi* and *M. mycophagus* are the second most abundant species. Hence, our result conveys an updated list of the termite fauna of Southern Haryana, which, in turn, helps terminologist's to look forward to studying more termite fauna of this area.

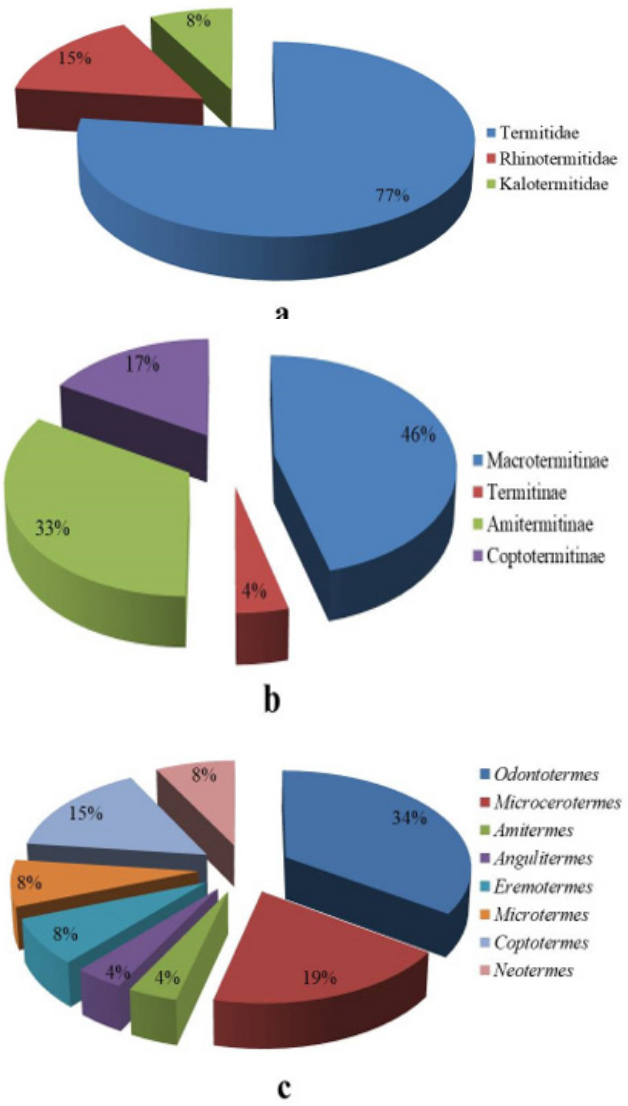

Figure 2: a) Diversity of species at family level, b) diversity of species at subfamily level, and c) diversity of species at genera level

CONCLUSION

According to our research, termites are a very diverse collection of insects. To identify these diverse specimens from the uncertain locality a systematic study is required to support their presence in the area. The soil of Southern Haryana displays a wide variety representing linear ridges of the Aravalli Ranges with decreasing water levels. This type of soil may affect termites' occurrence range and provides a chance to evolve higher diversity. Therefore, an effort is made to research the present diversity of termite fauna of Southern Haryana. A total

of 26 species are identified from Southern Haryana and classified into 3 families (Termitidae, Rhinotermitidae and Kalotermitidae), 4 subfamilies (Amitermitinae, Termitinae, Macrotermitinae and Coptotermitinae) and 8 genera (*Amitermes*, *Angulitermes*, *Eremotermes*, *Coptotermes*, *Microtermes*, *Microcerotermes*, *Odontotermes* and *Neotermes*). This checklist of identified termite species from a selected locality provides a base for further research.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

SUMMARY

Isopterans are the most beautiful engineers in nature for their super architectural and huge economic significance. They make up an amazing group of social insects with highly developed caste systems, organizations, and labour divisions.[1-3] Termites help in maintaining the physio-chemical nature of soil by acting as bio-decomposers and they also encourage the migration of microorganisms by mixing upper and lower layers of soil during construction.[1-5] A huge variety of termites live in tropical and African locations.[8,9] The majority of the research on the biodiversity of termites has focused on morphological description and analysis, where termites exhibit caste system behaviour that provides the foundational data for species identification. Hence, the main focus of termite identification is given to both soldiers as well as alates (winged reproductive) castes.[11,12] A total of 3106 species were reported globally, out of, 300 species are from India and 37 species are fitted into 3 families (Rhinotermitidae, Kalotermitidae and Termitidae) and 11 genera are recorded from Haryana.[15,20] It is important to note that only about 10% of the predictable 3,106 species are reflected as pests.[12,16,37] As termites are seasonal insects hence their appearance rate is influenced by the favorable rainy season.[21,22] Because this pedo-fauna required optimum water level for its proper development.[23] From Haryana, initial work on termite diversity was done by[40] reported 11 species, then[41] reported the sequential work on faunal diversity (19 species), and later on 20 species under ten genera and three families[42] but the highest diversity i.e., 39 species counted by.[20,46,47]

During this study, a total of 26 termite species were identified morphologically with the utility of systematic analysis. These species were fitted into 3 families, 4 subfamilies and 8 genera. Out of these, at the family level, the Termitidae family was the most dominant family covering 77% of the total identified species whereas at subfamily and genus level the subfamily Macrotermitinae (42.3%) and genus *Odontotermes* (35%) both were the most abundant among the other. Similar findings at the family level were reported by.[28,44,45] Subfamily Macrotermitinae was predominant with respect to others, which was also proved by[56-58] Whereas, genus *Odontotermes* was encountered with more number species as compared to other genera. This was well supported and stated by.[6,20] At the species level, 3 species *O. obesus*, *M. mycophagus* and *M. obesi* were the encountered with maximum number.[3,6,28,63-65]

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