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DISTRIBUTIONAL PATTERN OF TERMITES (ISOPTERA : INSECTA) IN MAHARASHTRA, INDIA

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INTRODUCTION

Termites occur in abundance in the circumtropics, more abundance in the humid tropics and very sparse so in the warm temperate regions. India, being a vast tropical country, supports more than 300 species (Maiti, 1991) of termites in contrasting richness and paucity in its different physiographic units. In considering the vastness of the country, a number of attempts have been made to explore State-wise termite fauna and to enumerate their distribution pattern (Roonwal and Chhotani, 1962–Assam region; Roonwal and Bose, 1964–Rajasthan; Maiti, 1983–West Bengal; and Bose, 1984–South India).

The State of Maharashtra with its contrasting land elevation in the Western Ghats, stretches of pluvial coastal plains and dry Deccan plateau remains unexplored from termite point of view, although stray reports are not uncommon (Snyder, 1949). A detailed collection and study of termites have been made by the author to record 28 species from the State. The analysis of the distribution pattern of these termites in relation to different physiography, climate, vegetation, etc. of three units namely, Konkan Coastal Plain, Sahyadri Western Ghats and Maharashtra Plateau is the main purpose of the present paper. Such an ecological analysis will never be satisfactory, unless it takes into account of the physiography, climate, vegetation, etc. of the area studied. Reasonably, these factors are briefly incorporated in the paper.

PHYSIOGRAPHY, CLIMATE, VEGETATION, ETC.

The State of Maharashtra is situated within the Peninsular plateau in the western fringe of India. The Arabian Sea and the Sahyadri range or the Western Ghats are the dominating feature of this region. The Sahyadri range, much older than the mighty Himalaya run north to south close to the western coast presides over the climate of the area. However, the state is divided into three

distinct physiographic sub-divisions, *i.e.*, the Konkan Coastal Plain, Sahyadri range (western ghat) and Maharashtra plateau.

In the Western Ghat most of the high peaks rise above 1400 m and the highest peak is Kalsubia (1646 m) near Igatpuri. Nearly whole of the Maharashtra plateau is formed of plateau basalt which on weathering has given rise to rolling surface with intervening shallow valleys.

The Konkan coast is generally cliffy. The rain receives highest in the ghat area (Mahabaleswar 630 mm) and medium in coastal plains (Bombay 180 mm) and minimum in the Decan plateau (60–78 mm).

The topical evergreen forest is the characteristic vegetation in western slope of the ghat, while the eastern slope and the Decan plateau support mostly dry deciduous and thorn forest in succession from west to east. The soil is mainly three types, namely, coastal alluvial, hill soil and deep black soil in successive subdivisions from west to east.

MATERIAL AND METHOD

The study is based on a fairly good collections of termites from all over the State made by the author during the last few years. Such huge collection was augmented by further collection made by the staff-members of the Western Ghat Regional Station, Pune, as well as by those from the Zoological Survey of India, Head quarter, Kolkata. The study of these termites has resulted in the recognition of 28 species from nenerous localities of Maharashtra. The distribution data have been tabulated in three major physiographic units. All the material preserved in alcohol were studied under a Sterioscopic Binocular Microscope.

OBSERVATION (FAUNAL COMPOSITION)

A total of 28 species of termites were recognised belonging to 13 genra under two families, namely, Rhinotermitidae (2 species only) and Termitidae (26 spp.). The members of the former family are partially wood and soil-inhabiting, while those of the latter are purely soil-inhabiting species. Interestingly enough, the purely wood-inhabiting species belonging to the families, Kalotermitidae and Hodotermitidae being so common all over the country, are altogether absent, in spite of unique ecological habitats available in the evergreen rain forest in the Ghat area. However, the soil-inhabiting species (26 species out of 28) have outnumbered other species in the area, of which 8 species represent in all the physiographic units. Of course, a single species, *Coptotermes heimi* (Wasm.) inhabiting primarily in wood with mixture of soil, also occur throughout the State. Thus eight species spread in all the physiographic units.

Fauna of the Kokan Coastal Plain

This area contains 15 species of termites including all two Rhinotermitidae species (Table 1). Maximum number of 7 species belonging to the genus, *Odontotermes* is recorded from the area. Out of this, 5 species are found in two other units and none restricts itself in the area, 4 species are common to Coastal and its adjacent tract of Western Ghat area. Only single species, *Microcerotermes tenuignathus* is upto now known from the coastal plain. However, more than 50% of the fauna is the soil-inhabiting species.

Fauna of the Sahyadri Hill Range (Western Ghats)

This hilly tract is the richest in supporting as many as 22 species, of which 7 species spread in all the units, 6 restrict itself in the area and 4 species are common to coastal area and 7 to Ghat and Deccan Plateau (Table 1).

Fauna of the Maharashtra Plateau

The vast Deccan tract supports minimum number of 14 species. Out of these, 4 species restrict to the area, eight species shares both the Ghats and the Plateau areas. There is not a single species common to Coastal and Plateau units. However, only 5 genera could be recorded from the area with their representative species (Table 1).

DISCUSSION

The termite fauna of Maharashtra may not be considered as very rich in considering its contrasting physiography creating some ideal ecological habits especially in the Ghat area with its luxuriant evergreen forest grown by the influences of contrasting land elevation, high rain fall, humidity etc. No doubt the Western Ghat area is more rich in containing 22 species in comparison to two other physiographic units. The richest concentration of soil-inhabiting species as listed in the table 1 is due to high precipitation retaining sufficient moisture in the soil under the shade of the forests. The coastal plain and the vast Deccan trap do not share any species except a single species probably due to existences of hilly tract (Ghat) serving as an effective barrier for easy dispersal of these weak flying insects. The Western slope of the Ghats area including the coastal plain receiving highest rainfall supports more species to thrive. The eastern slope including the vast stretches of Deccan trap being in the rain shadow. The area is hot and less humid supporting less number of species in the barren soil condition with less concentration of forest.

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Table 1. : Distribution pattern of termites in different physiographic units ('+' = Present & '-' = Absent) of Maharashtra.

Sl. No.	Name of the species	Konkan Coastal Plains	Western Ghats	Maharashtra Plateau	Common in Maharashtra
1.	<i>Heterotermes indicola</i> (Wasmann)	+	+	+	+
2.	<i>Coptotermes heimi</i> (Wasmann)	+	+	+	+
3.	<i>Speculitermes cyclops</i> (Wasmann)	-	+	-	-
4.	<i>Microcerotermes annandalei</i> Silvestri	-	-	+	-
5.	<i>Microcerotermes beelsoni</i> Snyder	-	-	+	-
6.	<i>Microcerotermes fletcheri</i> Holmgren & Holmgren	+	-	+	-
7.	<i>Microcerotermes tenuignathus</i> Holmgren	+	-	-	-
8.	<i>Microtermes deoriensis</i> n. sp.	-	+	-	-
9.	<i>Microcerotermes heimi</i> Wasmann	-	-	+	-
10.	<i>Angulitermes fletcheri</i> Holmgren & Holmgren	-	+	-	-
11.	<i>Dicuspiditermes gravelyi</i> (Silvestri)	-	+	-	-
12.	<i>Dicuspiditermes incola</i> (Wasmann)	+	+	-	-
13.	<i>Dicuspiditermes cornutella</i> (Silvestri)	+	+	-	-
14.	<i>Pseudocapritermes fletcheri</i> Holmgren & Holmgren	-	+	-	-
15.	<i>Pericapritermes perparvus</i> Holmgren	-	+	-	-
16.	<i>Odontotermes assmuthi</i> Holmgren	-	+	+	-
17.	<i>O. feae</i> (Wasmann)	+	+	+	+
18.	<i>O. bellahunisensis</i> Holmgren & Holmgren	+	+	-	-
19.	<i>O. horni</i> (Wasmann)	+	+	+	+
20.	<i>O. gurdaspurensis</i> Holmgren & Holmgren	+	+	-	+
21.	<i>O. obesus</i> Rambur	+	+	+	+
22.	<i>O. wallonensis</i> (Wasmann)	+	+	+	+
23.	<i>O. loknandi</i> Chatterjee & Thakur	-	-	+	-
24.	<i>O. brunneus</i> Hagen	+	+	+	+
25.	<i>Microtermes obesi</i> Holmgren	-	+	+	-
26.	<i>Trinervitermes biformis</i> (Wasmann)	+	+	-	-
27.	<i>T. nigrirostris</i> Mathur & Sen-Sarma	-	+	-	-
28.	<i>Macrotermes convulsionarius</i> (König)	+	+	-	-
	Total	15	22	14	8

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