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Editorial
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Mitochondrial Approach of Indian Termites to Explore Phylogenetic Link

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Termites have a reputation of being pests by causing damage of millions of dollars to wooden structures, human homes, building materials, forests, other commercial products and vegetation all around the world. Nevertheless, recent studies and discoveries have begun to correct the downbeat view of the termites. It has already been reported that only 12 to 20 species act as pests [1]. Studies on the evolution of this order of insects have suggested a much more accurate relationship of their contribution to the environment and in long term balance of ecosystem in the millions of years they have existed. The detritivores recycling of lignocelluloses materials accomplished by termite colonies leads to soil formation. They act as mediators in arid environments by controlling accessibility of litter to other decomposers. Termites are responsible for the removal of up to 100% of herbaceous matter. Though cosmopolitan, but they mainly resides in the tropical and subtropical areas. Throughout Southeast Asia, the most economically important genera are *Microtermes*, *Coptotermes*, *Odontotermes*, *Macrotermes*, *Trinevitermes* and *Heterotermes*. As Indian subcontinent presents diverse physical and climatic features, it offers favorable conditions to support a rich and varied termite fauna. Out of the known termite species from all over the world, more than 300 are from Indian region [2].

In India termites of the genus *Odontotermes* and *Microtermes* cause the heaviest destruction of seasoned timber both within buildings and in exterior surroundings. In different regions of India heavy losses have been recorded on highly susceptible crops such as wheat and sugarcane in northern India, maize, groundnuts, sunflower and sugarcane in southern India; tea in North-Eastern India and cotton in Western India, thereby causing severe losses of several millions of rupees in agricultural crops alone. Termite problems in agriculture in Southeast Asia largely affect perennial tree crops.

The correct identification of pest termites which requires very different control methods, depending on the target species, is critical. It is difficult to carry out systematic research on termites by morphology alone and many species have been misidentified under different genera. Molecular studies, involving the use of mtDNA which exhibit extensive polymorphism, have now demonstrated a great potential for DNA sequence analysis in the interpretation of phylogeny and gene flow in various termite species in different parts of the world. However, despite of their great economic importance, less study had been carried out in India to characterize the termites based on mitochondrial genes.

The phylogeny of Indian termites based on 12SrRNA, COI, COII, ND1 etc., has been carried by some institutions and the observations done by the use of multiple genes provided divergent results and usefulness of the whole genome analysis in further phylogenetic and evolutionary inspection of termites should be considered.

References

1. Bignell E (2000) Termites: Evolution, Sociality, Symbioses, Ecology; Abe T, Bignel DE and Higashi M (eds). Kluwer Academic Publishers, Dordrecht, The Netherlands.
2. Roonwal ML, Chhotani OB (1989) The fauna of India and adjacent countries: Isoptera (Termites). Zoological Survey of India, Calcutta.

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