



# MODERN TRENDS IN BIOLOGICAL RESEARCH

## Editors

Dr Indu M S | Dr Honey Sebastian | Dr Petrisia Joseph



A Handbook in connection with the National Level  
Virtual Scientific Paper Presentation Competition  
organized by ZOOTOPIA - The Journal Club,  
PG Department of Zoology, Vimala College  
(Autonomous), Thrissur – 680009



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# Application of molecular taxonomy in lynx (Oxyopidae) spiders

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## Abstract

The family Oxyopidae comes under order Araneae, which includes lynx spiders. Their cryptic behaviour, sexual dimorphism and unavailability of taxonomic keys for juveniles make the taxonomic studies in this group strenuous. Recently DNA barcoding contemplate as a state-of-the-art in taxonomic appraisals, especially in spider taxonomy. Species specific studies in Oxyopidae gain importance by accounting their hunting behaviour and its significance in integrated pest management. Members under Oxyopidae enjoy a wide distribution across the tropics and subtropics. Even so the molecular taxonomic studies among the lynx spiders focused at most in southern Asia. As of November 2020, the World Spider Catalog accepts 438 species in 9 genera of lynx spiders. Among this not more than 30 species are identified by using molecular taxonomic tool. Most of the molecular taxonomic studies in Oxyopidae employed Cytochrome Oxidase 1 (COI) as a molecular marker. DNA barcoding paved the way for a comparative study among the members of the same family and others by obtaining the DNA sequences from BOLD or GenBank using BLAST algorithms, which further helps to generate phylogenetic relations using computer software. A close phylogenetic relationship of *Oxyopes shupingensis* with *O. sertatus* confirmed by DNA barcoding. Barcoding of complete mitochondrial genome of striped lynx spider *O. sertatus*, using the circular genome is 15,078 bp in length, revealed 13 protein-coding genes (PCGs), 22 transfer RNA (tRNA) genes, 2 ribosomal RNA genes, and a control region. Barcoding of diversity and structure of bacterial communities in the gut of Oxyopidae impart the ecology and feeding behaviour of its members.

**Keywords:** *Araneae*, *COI*, *DNA Barcoding*, *Identification*, *Oxyopidae*

## Introduction

The family Oxyopidae comes under largest arachnid order Araneae distributed predominantly in the equatorial region and some part of the temperate zone as well. These spiny legged hunting spiders are proficient in fast running and jump on the prey as a wild cat. Many lynx spiders are important predators in agricultural systems as biological control agents (Meng et al., 2014). A total of 438 species in 9 genera of lynx spiders so far reported all over the world (WSC, 2020). Hexagonally arranged eight eyes accompanying prominent spines on the legs discern them from the remaining spider families. Spiders of the family Oxyopidae have