



ISSN 2320-7078  
JEZS 2014; 2 (6): 308-313  
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[www.entomoljournal.com](http://www.entomoljournal.com)  
Received: 21-10-2014  
Accepted: 21-11-2014

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## Biodiversity of spiders (Arachnida: Araneae) of Karachi (Urban) Sindh Province, Pakistan

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### Abstract

Karachi started as a small fishing village called Mai KOLACHI. Its location is 24°51'36"N, 67°00'36"E Altitude 8 meters AMSL total 3,527 km<sup>2</sup>. The Surrounding of Karachi, industries and few cultivation and variety crops are sown. These crops and building have providing habitat for different kind of arthropods including spider. The spider fauna of Karachi Sindh Province is insufficiently known, few reports, however, are available. In the present study 80 species from 21 families under 51 genera are being reported during 2009 to 2014. Salticidae were most commonly occurred species.

**Keywords:** Spider, Sindh, Pakistan, Biodiversity, new records.

### 1. Introduction

Spiders are well known mostly beneficial arthropods. It is belong to Class Arachnida, Order Araneae They have 7<sup>th</sup> number of animal diversity in the world with count of 113 families 3873 genera under 43700 species are known worldwide (Normon I Pantanic Version 14.5 2014) [1]. About 70% percent of the species are predators of insects larvae, mite. The spiders are an important group of insect pest from both an economic standpoint in their use as biological control agent and in their diversity and adaptation to a number of differing habitats. From Pakistan, only few taxonomists, Dayl 1935, [2] Qurashi 1982 [3], Arshad *et al* 1984, [4] Khatoon 1985-1986, [5] Mushtaq and Qadir 1999, [6] Butt A M A Baig 2001, [7] Ghafoor A M A Baig 2002, [8] Razzaq 2002 [9], Razia 2003, [10] Khalid 2004. O B kock 2004, [11, 12], Perveen *et al.* 2007 [13], Tahir and Butt 2009 [14] Jabeen T *et al.* 2010, [15] Rajput S *et al.* 2012, [16] Perveen F *et al* 2012, [17] Jabeen T *et al.* 2013, [18] M. Kazim *et al.* 2013 [19] worked on different species of spider.

Very scanty reports on the spider of Karachi urban are available M Kazim *et al.* 2013 therefore, a survey was carried out. The present study will enrich the base data on biodiversity in the said area

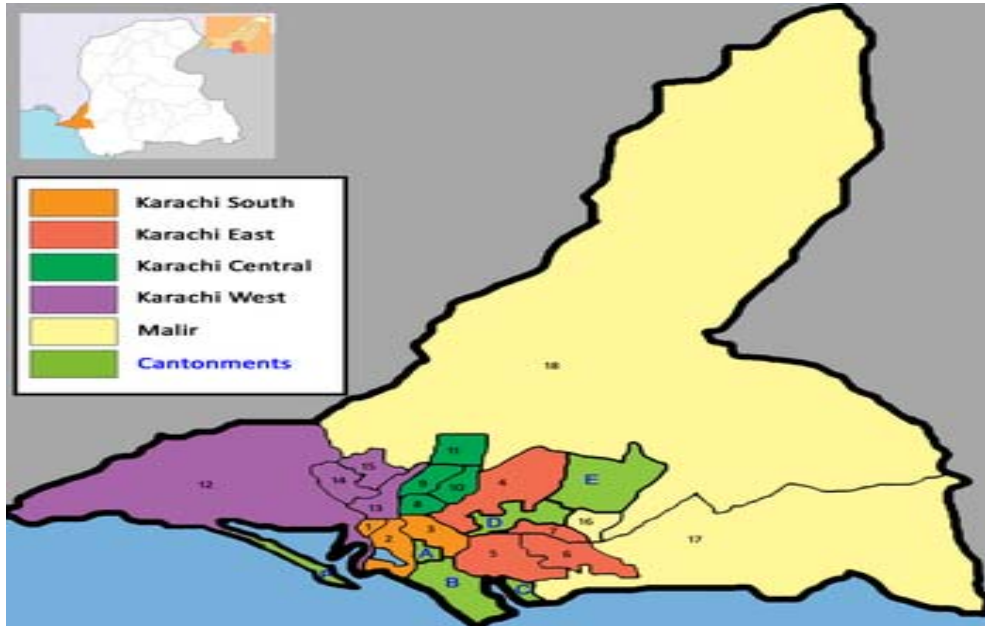
### 2. Materials and Methods

Karachi is an important regional part of Pakistan. Its location is 24°51'36"N, 67°00'36"E Altitude 8 meters AMSL total 3,527 km<sup>2</sup>. The Surrounding of Karachi in under cultivation of different crops and buildings. These crops and building have providing habitat for different kind of arthropods including spider. The main purpose of present study is exploring biodiversity spiders of Karachi (urban) was carried out from 2009-2014. Tree trunks forest net sweeping hand picking Visual searching Pitfall trap and using light traps total 2155 specimen belonging 80 species 51 genera and 21 families. The identification was done following Pocock. R I 1900 [20], T Thorell 1895 [21], Tikader 1982 [22] as well as authentic literature and expert of the family. After the complete study specimen are Preserved in 70% alcohol and few drops of glycerin and stored in department of Zoology and Entomology University of Karachi.

### 3. Results and Discussion

In the present study 80 species belonging to 21 families under 51 genera were recorded out of 80 species Salticidae most commonly occurred while Lycosidae and Araneidae are shown denominated in agriculture field. Salticidae are 12% and highest species diversity Araneidae are second largest in species and rest of the families has equal quantity.

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**Fig 1:** Location map of Study areas (Karachi urban) Sindh Pakistan

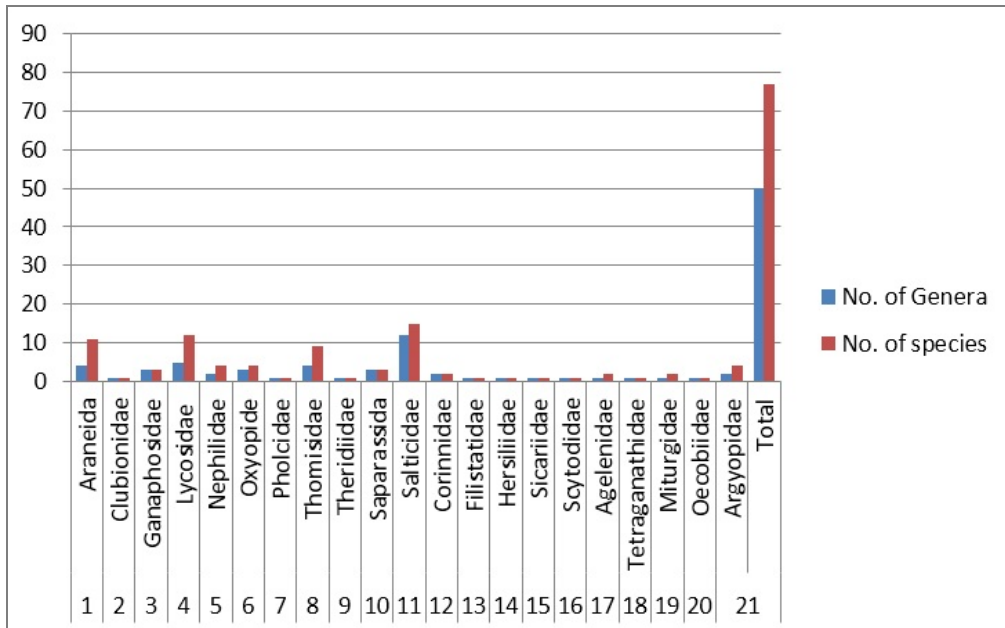
**Table 1:** Biodiversity of spider species recorded from 2009-2014 Karachi Urban Sindh Pakistan

| Family                       | Species                     | Sp. Count                     |    |
|------------------------------|-----------------------------|-------------------------------|----|
| Araneidae                    | <i>Neoscona mokerjei</i>    | 60                            |    |
|                              | <i>Neoscona nautical</i>    | 40                            |    |
|                              | <i>Neoscona crucifera</i>   | 60                            |    |
|                              | <i>Neoscona pavidae</i>     | 30                            |    |
|                              | <i>Neoscona odites</i>      | 20                            |    |
|                              | <i>Neoscona minuta</i>      | 10                            |    |
|                              | <i>Aranus cucurbitinus</i>  | 20                            |    |
|                              | <i>Araneus nympa</i>        | 20                            |    |
|                              | <i>Araneus didematus</i>    | 40                            |    |
|                              | <i>Zygiella indica</i>      | 15                            |    |
|                              | <i>Aculeperia ceropegia</i> | 10                            |    |
|                              | Clubionidae                 | <i>Clubiona drassodes</i>     | 20 |
|                              | Ganaphosidae                | <i>Scotophaeus domesticus</i> | 20 |
|                              |                             | <i>Scopodes pritae</i>        | 5  |
| <i>Scotophinus maindroni</i> |                             | 10                            |    |
| Hersiliidae                  | <i>Hersilia savignyi</i>    | 10                            |    |
| Lycosidae                    | <i>Trochsa terricola</i>    | 40                            |    |
|                              | <i>Pardosa minuta</i>       | 10                            |    |
|                              | <i>Pardosa domisestica</i>  | 10                            |    |
|                              | <i>Pardosa altitudes</i>    | 15                            |    |
|                              | <i>Pardosa ragistana</i>    | 10                            |    |
|                              | <i>Pardosa alii</i>         | 10                            |    |
|                              | <i>Pardosa falvistania</i>  | 365                           |    |
|                              | <i>Wadicosa sp</i>          | 70                            |    |
|                              | <i>Lycosa maculate</i>      | 10                            |    |
|                              | <i>Lycosa chaperi</i>       | 70                            |    |
|                              | <i>Lycosa mastri</i>        | 10                            |    |
|                              | <i>Hippa partia</i>         | 10                            |    |
| Nephilidae                   | <i>Nephila clavipes</i>     | 8                             |    |
| Oxyopide                     | <i>Oxyopes gavanus</i>      | 8                             |    |
|                              | <i>Oxyopes hengianesis</i>  | 6                             |    |
|                              | <i>Oxyopes birmanica</i>    | 7                             |    |
|                              | <i>Salticus spp</i>         | 7                             |    |
| Pholcidae                    | <i>Artema Atlanta</i>       | 70                            |    |
| Thomisidae                   | <i>Thomisus pugilis</i>     | 30                            |    |
|                              | <i>Thomsus labosus</i>      | 15                            |    |
|                              | <i>Xysticus roonwli</i>     | 15                            |    |
|                              | <i>Xysticus shyamirupus</i> | 18                            |    |
|                              | <i>Xysticus fero</i>        | 10                            |    |
|                              | <i>Xysticus cristatus</i>   | 10                            |    |
|                              | <i>Misumena formosipes</i>  | 10                            |    |

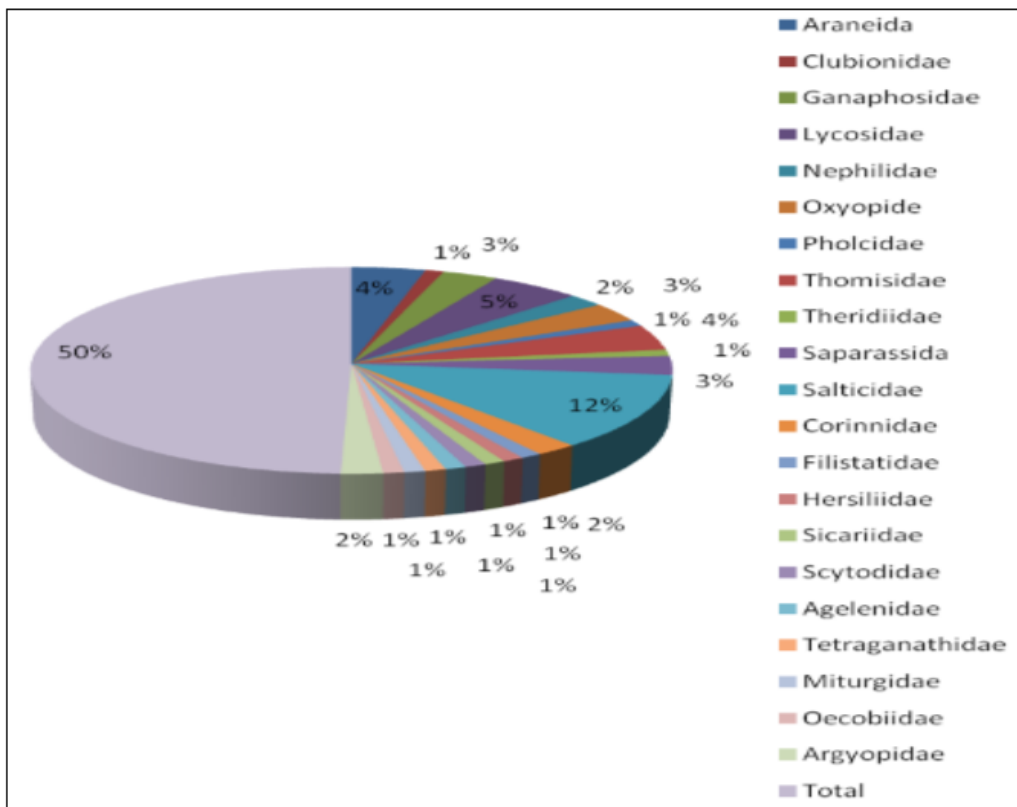
|              |                                  |      |
|--------------|----------------------------------|------|
|              | <i>Misumena vatia</i>            | 10   |
|              | <i>Diaea dorsata</i>             | 12   |
| Theridiidae  | <i>Latrodectus hasselti</i>      | 7    |
| Saparassida  | <i>Olios .sp</i>                 | 20   |
|              | <i>Heteropoda nilgiriga</i>      | 20   |
|              | <i>Isopoda tuhogniga</i>         | 20   |
| Salticidae   | <i>Plexipus.Paykulli</i>         | 70   |
|              | <i>Bianor albobimarculatus</i>   | 40   |
|              | <i>Evarcha sp</i>                | 30   |
|              | <i>Langona tartarica</i>         | 30   |
|              | <i>Menemerus bivittatus</i>      | 70   |
|              | <i>Menemerus marginatus</i>      | 30   |
|              | <i>Menemerus nigli</i>           | 20   |
|              | <i>Menemberus brevibulbus</i>    | 40   |
|              | <i>Plexippus.petersi</i>         | 50   |
|              | <i>Thyene imperialis</i>         | 15   |
|              | <i>Hasarius adansoni</i>         | 60   |
|              | <i>Myrmarachna.bakri</i>         | 10   |
|              | <i>Myrmarachna plataeucdaed</i>  | 5    |
|              | <i>Marpissa tigrina</i>          | 30   |
|              | <i>Pellenes sp</i>               | 20   |
|              |                                  |      |
| Argyopidae   | <i>Cyrtophora citricola</i>      | 10   |
|              | <i>Argyopes aemula</i>           | 15   |
|              | <i>Argyopes ansuji</i>           | 15   |
|              | <i>Argyopes kalimpongensis</i>   | 20   |
| Corinnidae   | <i>Castinneria atrica</i>        | 15   |
|              | <i>Trachelas tranquillus</i>     | 12   |
| Filistatidae | <i>Filistata insidiatrix</i>     | 10   |
| Sicariidae   | <i>Loxosceles reclusa</i>        | 10   |
| Scytodidae   | <i>Scytodus Thoracica</i>        | 30   |
| Agelenidae   | <i>Tegenaria atrica</i>          | 10   |
|              | <i>Tegenaria domestica</i>       | 30   |
| Miturgidae   | <i>Cheriacanthium mildei</i>     | 15   |
|              | <i>Cheiracanthium furculatum</i> | 20   |
| Oecobiidae   | <i>Oecobius navus</i>            | 100  |
|              |                                  | 2155 |

**Table 2:** Total Number of Family, Genera and Species of spider abundance Karachi (urban) University Sindh Pakistan.

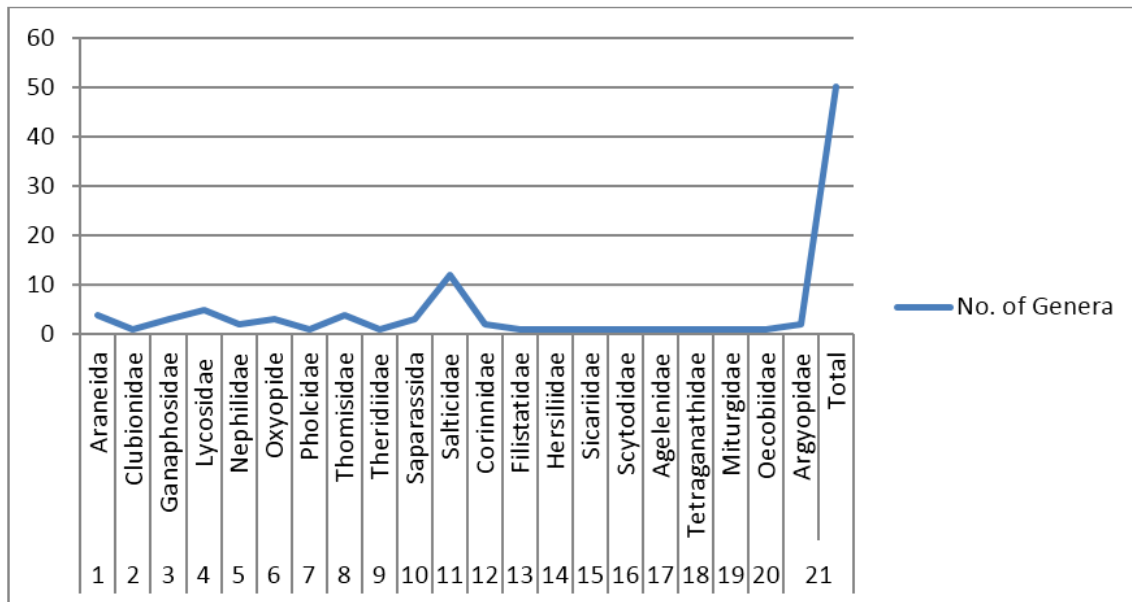
| S. No. | Families         | No. of Genera | No. of species |
|--------|------------------|---------------|----------------|
| 1      | Araneida         | 04            | 11             |
| 2      | Clubionidae      | 01            | 01             |
| 3      | Gnaphosidae      | 03            | 03             |
| 4      | <i>Lycosidae</i> | 05            | 12             |
| 5      | Nephilidae       | 02            | 04             |
| 6      | Oxyopidae        | 03            | 04             |
| 7      | Pholcidae        | 01            | 01             |
| 8      | Thomisidae       | 04            | 09             |
| 9      | Theridiidae      | 01            | 01             |
| 10     | Saparassida      | 03            | 03             |
| 11     | Salticidae       | 12            | 15             |
| 12     | Corinnidae       | 02            | 02             |
| 13     | Filistatidae     | 01            | 01             |
| 14     | Hersiliidae      | 01            | 01             |
| 15     | Sicariidae       | 01            | 01             |
| 16     | Scytodidae       | 01            | 01             |
| 17     | Agelenidae       | 01            | 02             |
| 18     | Tetragnathidae   | 01            | 01             |
| 19     | Miturgidae       | 01            | 02             |
| 20     | Oecobiidae       | 01            | 01             |
| 21     | Argyopidae       | 02            | 04             |
|        | Total            | 51            | 80             |



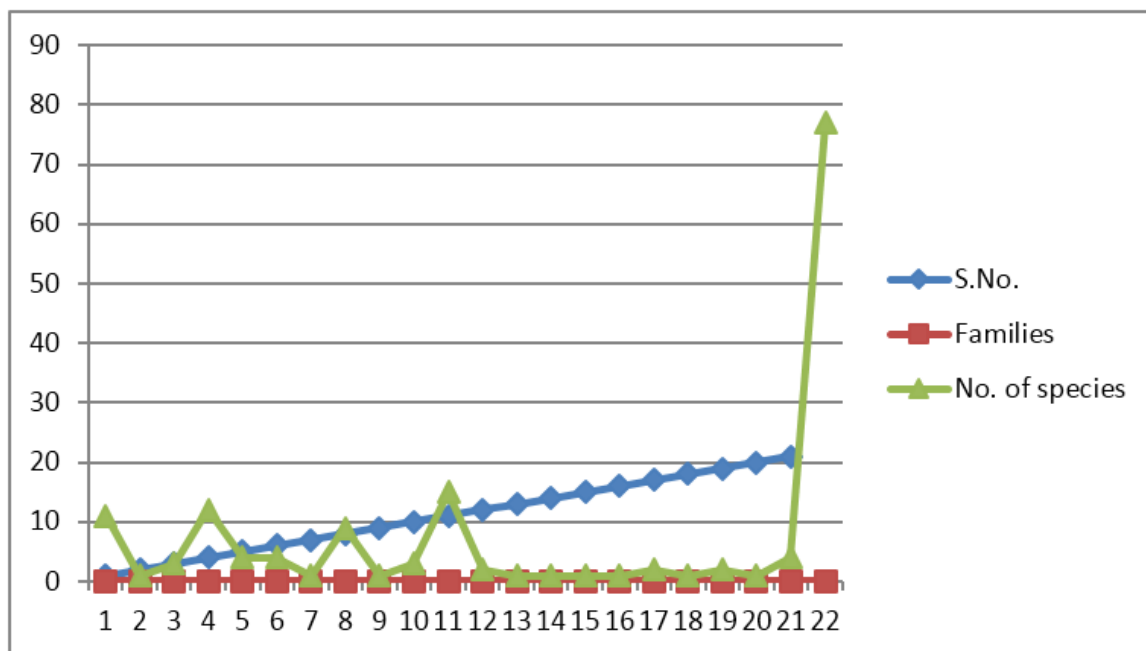
**Graph 1:** Spider population among Species and genera and diversity in Karachi during 2009 - 2014 (urban) Sindh Pakistan



**Graph 2:** List of families under arachnida araneae Karachi (Spiders) and their abundance during 2009-2014



**Graph 3:** Spiders genera recorded from the study areas during period (2009 to 2014) level Karachi urban Sindh Pakistan



**Graph 4:** Spider species recorded from the study areas during the study period (2009-2014) species level Karachi urban Sindh Pakistan

**4. Acknowledgement**

The authors are thankful to Dr. Dmitri Logunov UK, Dr. Yuri M. Marusk Russia, Dr. Charlis Haddad, South Africa Dr. Gustavo Ruiz, Dr. Matjaz Kuntner Philippine Dr. Muhammad Tahir Sirgoda University for their help in conformation of some of species.

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