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Review Article

SPIDER FAUNA PREVAILING IN PAKISTANArshia Sumbal¹, Nayab Khan^{1*}, Tahseen Ara¹¹Department of Zoology University of Balochistan, Quetta-Pakistan.

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Abstract:

Current study was conducted at University of Balochistan during 2018. The data involving check list of spider fauna of Pakistan was reviewed and compiled as a review paper from published articles. Spider act as biological control in every agro-ecosystem. The occurrence of spider Fauna in Pakistan as well as a brief summary is presented in this research, revealed 249 species belonging to 32 families, 80 genera from different regions of Pakistan, from Sindh 132 species, Punjab 111 species, Khyber Pakhtunkhwa 90 species and from Gilgit Baltistan 29 species were recorded. The most dominant families were Arachnida, Lycosidae, and Salticidae.

Keywords: Spider fauna, Arthropods.**Corresponding author:****Nayab Khan,**

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INTRODUCTION:

Spiders are ancient and successful group of invertebrate animals and are known as poisonous arthropods (Singh, *et al.*, 2014). Spiders belong to phylum arthropoda, sub phylum chelicerate, class Arachnida and order Araneae (Riechert, 1984). All over world 38,000 species have been identified. Mostly all species are poisonous, but 40 species are more poisonous to humans (Ursani and Somroo, 2010). They also act as the predator or biological pest control agent. Pakistan is an agricultural country and has a very diverse fauna, while spider is a dominant member of the community (Butt and beg, 2001). Spiders are the most abundant predator in the terrestrial ecosystem, as they feed on different types of insects, their larvae and arthropods eggs. Worldwide, spiders have great diversity with 113 families 3873 genera and 43700 species (Platnick, 2014). The literature review shows wide portion of research work which has been carried out on spiders from Pakistan, only few taxonomists (Dayl, 1935, Qurashi, 1982, Arshad, *et al.*, 1984, Khatoon, 1985-1986, Mushtaq and Qadir, 1999, Butt and Beg 2001, Ghafoor and Beg 2002, Razzaq, 2002, Razia, 2003, Khalid and kock 2004, Perveen, *et al.*, 2007, Tahir and Butt 2009, Jabeen, *et al.*, 2010, Rajput, *et al.*, 2012, Perveen, *et al.*, 2012, Jabeen, *et al.*, 2013, Kazim *et al.*, 2013) worked on different species of spider from different regions of Pakistan. Spiders are ancient and successful group of invertebrate animals (Platnick, 2014). Biological control is the most effective control measures against insect pests, so spiders and beetles are used for control of Insect pests (Cave, *et al.*, 2008), and thus Spiders are considered as natural predators in agro ecosystems (Tahir, *et al.*, 2011).

Pakistan is rich in spider fauna and has diverse habitats, most of the area is occupied by different types of crops and provide habitat for different kind of invertebrates (Butt and beg, 2011). Some of the most diverse spider families include the familiar hairy, big-eyed “Jumping spiders” (family Salticidae 4,400 species worldwide); the small “Sheet-web spiders” (Linyphiidae, 3,700 species); the “Orb weaving spiders” (Araneidae, 2,600 species); the “Cobweb spiders” (Therididae, 2,200 species); the non-web weaving “Wolf spiders” (Lycosidae, 2,200 species); and the “Crab Spiders” (Coddington and Levi, 1991). The present study was designed to prepare the checklist of spiders including 249 mentioned species belonging to 32 families and 80 genera from different region of Pakistan.

SINDH PAKISTAN:

132 species belonging to 24 families and 73 genera were reported from Sindh Pakistan (Ursani and Soomro 2010).

PUNJAB PAKISTAN

Tahir and coworkers reported 1098 spider fauna from citrus field (Lahore) in 2006 and 2007. This fauna was represented by 9 families, 22 genus, and 33 species. Three most dominant families were Lycosidae (68.85%), Ganaphosidae (10.38%), and Salticidae (8.38%) (Tahir, *et al.*, 2011).

Mukhtar and co-worker (2012) collected spiders from district Sargodha, Punjab. A total of 56 species belonging to 16 families and 34 genera were recognized. But 54 of them were recorded for the first time from District Sargodha. As the collection was done mostly by shaking method, family Araneidae was the largest with 10 genera and 14 species (Mukhtar, *et al.*, 2012).

Ghafoor and co-worker collected 22 species belonging to 7 families, 10 genera from Gujranwala during 2010. The Lycosidae was the most dominant family (Ghafoor & Mehmood, 2011).

KHYBER PAKHTUNKHWA PAKISTAN:

Perveen and co-worker collected 23 species belonging to 15 genera and 9 families from FATA, Pakistan, during 2009-2010, the most leading family was Lycosidae (Perveen & Jamal, 2012). Noreen and co-worker collected total 2005 specimens were representing 44 species under 29 genera and 15 families from district Charsadda. The most dominant family observed during the study was Salticidae (Noreen, *et al.*, 2017).

Ahmad and their fellows reported 13 species of spiders belonging to 7 families from Burner District (Ahmad, *et al.*, 2015). Perveen and Khan collected 10 species belonging to 7 families from district Sheringal, Lycosidae was most dominant family (Perveen and Khan, 2015).

GILGIT BALTISTAN PAKISTAN:

Kazim and their fellows reported 29 species belonging to 17 families, 25 genera from Gilgit baltistan, the most common families were Lycosidae and Araneidae (Kazim, *et al.*, 2015).

S. no	Family	Species	Gilgit biltistan	Lahore	Sargodha	Charsadda	Sindh	Bunner	Fata	Gujranwala	Sheringal
1	Araneida	Araneus mitificus	Yes		Yes						
		Araneus alboquadratus					Yes				
		Araneus excelsus					Yes				
		Araneus formosellu					Yes				
		Araniella displicata					Yes				
		araneus pachganiens					Yes				
		A,kanwali					Yes				
		N. rumpf					Yes				
		N. hibiscusatus					Yes				
		Larinia directa					Yes				
		Caesarea					Yes				
		Argiope trifasciata			Yes		Yes				
		Cyclosa mohini					Yes				
		Argiopeaatikai					Yes	Yes			
		A.Pulchella					Yes				
		Cyclosa confraga	Yes		Yes		Yes				
		Araneus diadematus					Yes				Yes
		Cyclosa hexatuberculata	Yes		Yes		Yes				
		Zygeilla sp		Yes							
		Cyrtophora citricola			Yes		Yes				
		Eriovixia excels			Yes		Yes				
		Eriophora transmarina				Yes	Yes				
		Argiope keyserlingi				Yes	Yes				
		Punjabiensis					Yes				
		Chichawatniensis					Yes				
		Cicatrosa Stoliczka					Yes				
		Anastera Chamberlin					Yes				
		Gea heptagon					Yes				
		G. margallai					Yes				
		G. subarmata					Yes				
		Neoscona pavida					Yes				
		Gea zaragos	Yes	Yes	Yes		Yes				
		Larinia phthisica			Yes		Yes				
		Lipocrea fusiformis			Yes		Yes				
		Phoenix dactylifera			Yes		Yes				
		Neoscona bengalensis			Yes		Yes			Yes	
		Neoscona mukerjei		Yes	Yes		Yes				
		Neoscona crucifera		Yes		Yes	Yes	Yes			
		Backobourkia heroine				Yes	Yes				
		Neoscona theisi		Yes	Yes		Yes	Yes	Yes		
		Neoscona vigilans			Yes		Yes				

		N. nautical					Yes			
		N. domiciliorum					Yes			
		Parawixia dehaani			Yes		Yes			
2	Clubionidae	Clubiona drassodes	Yes	Yes	Yes	Yes	Yes	Yes		
		Clubiona comta				Yes	Yes			
		Clubiona pallidula				Yes				
		Clubiona filicata			Yes		Yes			
		C. kasurensis					Yes			
		Cheiracanthium								
		C. himalayensi					Yes			
		C. denieli					Yes			
		C. warsai					Yes			
		C. saccharanalis					Yes			
		C. mukhtari					Yes			
		Cheiracanthium azhari					Yes			
		Clubiona ludhianaensis					Yes			
		Clubiona pashabhahi			Yes		Yes		Yes	
3	Corinnidae	Oedignatha poonaensis			Yes		Yes			
		Gnaphosa jodhpurensis	Yes		Yes					
		Scopoides kuljitae			Yes					
		Scopoides pritiae			Yes					
		Falconina gracilis	Yes			Yes				
4	Lycosidae	Hippasa madhucae	Yes		Yes				Yes	
		H. madraspatna				Yes			Yes	
		Arctosa littoralis						Yes		
		H. aglenoides					Yes			
		Gladicosa					Yes			
		Allocosa manmaka					Yes			
		Hippasa pisaurina	Yes	Yes	Yes		Yes	Yes		
		Lycosa nigricans		Yes						
		Lycosa madani	Yes	Yes	Yes			Yes	Yes	
		Lycosa terrestris		Yes						
		Lycosa tista			Yes			Yes	Yes	
		L. kempi							Yes	
		L. mackenziei							Yes	
		Pardosa birmanica		Yes	Yes			Yes	Yes	Yes
		P. leucopalpis							Yes	
		P. oakleyi		Yes					Yes	
		Pardosa distincta						Yes		Yes
		Lycosa chaperi					Yes			
		L. harish					Yes			
		L. nigricans					Yes			
		Hippasa partita								Yes
		Tigrosa helluo				Yes				
		L. lahorensis					Yes			
		L. basiri					Yes			
		L. mackenziei					Yes			
		L. maculate					Yes			
		Pardosa mysorensis			Yes					

		Pardosa pseudoannulata			Yes			Yes			
		Pardosa sumatrana			Yes						
		Cheiracanthium inornatum			Yes						
		Lycosa maculate						Yes			
		P. saxatilis					Yes				
		P. hongae					Yes				
		P. mulani					Yes				
		Paradosa lahorensis					Yes				
		Schizocosa mccooki				Yes					
5	Oecobiidae	Oecobius putus	Yes		Yes						
		Oxyopes campii					Yes				
		U.matthaii					Yes				
		O. paivan					Yes				
6	Oxyopidae	Oxyopes javanus	Yes	Yes	Yes	Yes					
		Oxyopes variabilis				Yes					
		Oxyopes macilentus				Yes					
		Peucetia pabbii					Yes				
		Oxyopes salticus				Yes					
		Oxyopes ratnae		Yes	Yes	Yes					
		Philodromus betrabatai			Yes						
		O. ryvesii					Yes				
		O.oryzae					Yes				
		O.wroughtoni					Yes				
		O. hindostanicus					Yes				
		Oxyopes campii					Yes				
		Philodromus devhutai			Yes						
7	Pholcidae	Artema Atlanta	Yes		Yes			Yes	Yes		
		Artema Doriai					Yes				
		Daddy long legs,							Yes		
		Crossopriza lyoni					Yes	Yes	Yes		Yes
		Holocnemus					Yes				
		Halconia insignis									Yes
8	Salticidae	Marpissa decorate	Yes		Yes						
		Marpissa tigrina	Yes		Yes				Yes		
		M. albens					Yes				
		M. mirabilis					Yes				
		M. tenebrosa					Yes				
		Metaphidipus fulva					Yes				
		Plexippus paykulli	Yes	Yes	Yes	Yes		Yes	Yes		
		Bianor albobimaculatus		Yes							
		Chalcoscirtus splendid					Yes				
		P. dhakuriensis					Yes				
		Phlegra swanii					Yes				
		M. rubroclypea					Yes				
		Thyene imperialis.		Yes							
		Sitticus zaisanicus					Yes				
		Evophrus auricolor					Yes				
		B. fascialis					Yes				

		Bellota livida				Yes			
		Hasarius adansoni.		Yes					
		Penionos dyali				Yes			
		P. indicus				Yes			
		Phidippus punjabensis				Yes			
		Marpissa tigrina		Yes					
		Dendryphantes sp.		Yes					
		Menemerus bivittatus				Yes			
		Rhene decorate				Yes			
		Epocilla aurantiaca				Yes			
		Epocilla blairei				Yes			
		Epocilla calcarata				Yes			
		Menemerus semilimbatus				Yes			
		Macaroeris nidicolens				Yes			
		Thiania aura				Yes			
		Menemerus raji				Yes			
		M. laetus				Yes			
		M. orientales				Yes			
		M. Maratha				Yes			
		Myrmarachne ramunni				Yes			
		Chrysilla albens				Yes			
		Hentzia peckhami				Yes			
		Hentzia mitrata				Yes			
		Marmarachneelongate					Yes		
		Phintella vittate				Yes			
		Trite auricoma				Yes			
		Rhene indica	Yes	Yes		Yes			
9	Scytodidae	Scytodes propinqua	Yes		Yes				
		Scytodes thoracica			Yes	Yes		Yes	
10	Sparassidae	Olios lutescens	Yes		Yes				
		Holconia immanis				Yes			
		Heteropoda venatoria				Yes			
		Olios mahabangkawitus	Yes		Yes				
		Isopeda tuhogniga						Yes	Yes
		Olios punctipes			Yes				
		Olios punjabensis			Yes				
		Olios diana,					Yes		
11	Tetragnathidae	Guizygiella indica			Yes				
		Guizygiella melanocrania			Yes				
		Leucauge decorate			Yes		Yes		
		Leucagemaxillosa					Yes		
		Leucauge dorsotuberculata			Yes				
		Tetragnatha javana		Yes	Yes				

		Tetragnatha virescens		Yes						
		Tetragnatha extensa				Yes				
		Tetragnatha montona				Yes				
12	Thomisidae	Runcinia affinis	Yes	Yes	Yes					
		Thomisus cherapunjeus					Yes			
		Thomisus labefactus	Yes		Yes					
		Diaea evanida						Yes		
		Thomisus spectabilis				Yes		Yes		
		Thomisus stoliczka				Yes				
		Synalus angustus				Yes				
		Tmarus angulatus				Yes				
		Tmarus marmoreus				Yes				
		Thomisus okinawensis			Yes					
		Thomisus pugilis		Yes	Yes			Yes		
13	Uloboridae	Uloborus danolius			Yes					
		Miagrammopes					Yes			
		Zodarion spp					Yes			
14	Ganaphosidae	G. harpax	Yes						Yes	
		G. minosiella					Yes			
		G. betpaki					Yes			
		Gnaphosa scopoides					Yes			
		Drassodes saccatus					Yes			
		Z. pakistaniensis					Yes			
		G. eucalyptus					Yes	Yes	Yes	Yes
		Scotophaeus faisalabadiensis		Yes				Yes		
		Zelotus illustris		Yes		Yes	Yes			
		Zelotes faisalabadiensis					Yes			
		H. goensis					Yes			
		H. paropanisadensis					Yes			
		Herpyllus lativulvus					Yes			
		Zelotes longipes				Yes	Yes			
		Zelotus duplex		Yes		Yes				
		Drassodes sp		Yes						
		Gnaphosa sp		Yes						
15	Linyphiidae	Gnathonarium dentatum		Yes						
		Linyphiidae sp.		Yes						
		Erigone sp.		Yes						
16	Theridiidae	Steatoda Triangulosam	Yes			Yes	Yes			
		Achaeranea quadripunctata					Yes			
		Theridion niger					Yes			
		T. aura					Yes			
		Thwaitea diversa					Yes			

		Anelosimus chiloensis				Yes				
		Steatoda paykulliana				Yes				
		Spintharis argenteus				Yes				
18	Filistatidae	Filistata Kukulcania	Yes			Yes				
19	Scytodidae	Olios punjabensis	Yes			Yes				
		Heteropoda kandiana	Yes			Yes				
		Eusparassus fuscimanus				Yes				
		Scytodes propinqua				Yes				
20	Philodromidae	Philodromus domesticus				Yes				
21	Nicodamidae	N. dimidiata				Yes				
22	Eresidae	Stegodyphus pacificus				Yes				
23	Dictynidae	Dictyna albida				Yes				
24	Dysderidae	Dysdera laevigata				Yes				
25	Agelenidae		Yes							
26	Miturgidae		Yes							
27	Hersiliidae	Hersilia savignyi				Yes				Yes
		Arctosa littorali								Yes
28	Pisauridae	Dolomedes instabilis				Yes				
29	Trochanteriidae	Morebilus plagusium				Yes				
30	Tengellidae	Liocranoides flavescens				Yes				
		Socalchemmis kastoni				Yes				
		O. lutescens				Yes				
31	Hypochilidae	Hypochilus bonneti				Yes				
32	Opilionidae	Hadrobunus grandis								Yes

CONCLUSION:

It is indicated that great varieties of spiders exist in Pakistan. Spider fauna has great diversity due to ecological and geographical differences. In Pakistan few to no keys to spiders exist and poorly known, so it is the need of time to discover more species of spiders attributed to their importance in integrated pest management, agro-ecosystem, pest control and maintaining insect population. The insufficient information of Pakistan spiders poses difficulties in the analysis of distribution of many Central Asian species.

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