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Survey, Collection and Identification of Cricket Fauna of District Hyderabad, Sindh-Pakistan and Its Adjoining Areas

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Abstract:

The study on survey, collection and identification of cricket fauna of District Hyderabad and its adjoining areas was carried out during 2007-2010. The results revealed that 10 genera and 15 species belonging to 2 sub-families of main family Gryllidae were identified throughout the study period. The details of identified species from Hyderabad District and its neighbor areas like Jamshoro, Tandojam, Mirpur Khas, Kotri and Husri have been identified and mentioned in the study. However, almost all the identified species were notified in the Hyderabad District as compared to other areas. The study also showed that crickets were found almost everywhere what we surveyed in this study.

Key words: Survey, Collection and Identification, Cricket fauna, Gryllidae, genera, species.

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Introduction

Crickets are metropolitan insects and are notorious pest of various agricultural crops such as cotton, rice, millets etc. They are also found as predators and helpful in biological control strategy (Saeed, 2000). Crickets occur in terrestrial habitats throughout the world. They can even be found in remote places like the Galapagos Islands. Crickets belong to family Gryllidae and are most diverse in the tropics. This large family includes about 3,000 species worldwide, but only about 100 live in the U.S. and Canada. Crickets are closely related to grasshopper and katydids. They are nocturnal, medium to large size insects; body is flat and famous for their loud chirping. Antennae are as long as length of the whole body. Cerci are present in males as well as in females. Female is distinguished from the male by the presence of long, slender ovipositor through which females lay eggs in soil. Crickets feed on organic material as well as with the help on decaying plants and seedling plants. They live indoors as well as outdoor, in the house under the ceiling, in kitchen cabinets, in moist and damp places. Outside they can be found in leaf litter under the logs and rocks, in grasses, in go downs etc. A very interesting behavior of cricket is its noise, which male produce by rubbing their forewing to attract females. Female respond the chirping sound by the tympanic membrane present on front leg. Interestingly the chirping sound is different for each species so that is why acoustic behavior for their identification. True crickets undergo simple, or incomplete metamorphosis, with three life stages: egg, nymph, and adult. The females typically oviposit in the soil, or insert her eggs into plant stems. Most crickets overwinter in the egg stage. Depending on the species, the nymph may molt 6-12 times before reaching adulthood. Adult crickets usually live up to two months. They have positive impact on the ecosystem it helps in the renewing of soil minerals by breaking

down the plant material its negative impact is that it is a serious pest of crops and household things.

Climatic conditions of Pakistan are favorable for the insect population. Being an agricultural country Pakistan's main economy relies on agricultural crops and these crops are under continuous attacks of insects pests. This causes a great damage to our economy affects the living standards of common people. For the pest control pesticides are used to increase our yield, but the residues of pesticide have harmful effects on biotic components of our environment. The present study was designed to find out and identify crickets of Hyderabad District and its adjoining areas on the basis of easily recognized characters.

Materials and Methods

The study was mainly focused in Hyderabad District and its adjoining areas. Survey was carried out to find out crickets mainly in house kitchens, godowns, bakeries, undersides of rocks, inside grasses, upon litters and on lights at night. The crickets were collected with help of insect hand-net and by hand picking. They were then killed by chloroform or by means of potassium cyanide in standard entomological killing bottles. The specimens could not be left too long in cyanide least the colour changed particularly that of green specimen. To kill the specimen as soon as possible, fresh cyanide bottles were used. Pinning of the specimens was done within few hours. As the specimens became flexible there was a little danger of losing any part through the necessary manipulation, further the parts were stretched as desired. The insect pins were inserted on the right wing case or prothorax. The specimens were stretched on the stretching board. The left wings were set with the long axis of the body nearly at right angle to the pin and the head was directed slightly downwards. The posterior legs were bent beneath the body to minimize the possibility of breakage and to

occupy the least amount of storage space. The abdomen was so set that it dropped below the wings and did not obscure by the hind legs and thus several taxonomic characters were found on the terminal end and were not to be hidden. Till the specimen were thoroughly dried, the body parts had to be supported with extra pins so that they dry in the desired position and also special attention was paid to the antennae, wings and legs in order to display important taxonomic characters. Dust and other extraneous matters were removed with the help of dry camel hairbrush. The fully dried specimens were removed from stretching boards and were stored in insect boxes with labels showing locality, date and collector's name. Naphthalene balls were placed in boxes to prevent insect attack. Specimens were thoroughly examined under stereoscopic dissecting, binocular microscope under different magnifications. The diagrams presented here were mainly done with the help of "Ocular square micrometer". All the measurements are given in millimeter and were made with Vernier caliper. Photography was done with the help of Trinocular Stereo Microscope attached with camera. Outdoor photography was done through Digital camera A640 Canon.

Results

The studies on survey, collection and identification of cricket fauna associated with District Hyderabad-Sindh and its adjoining areas revealed that 10 genera and 15 species belonging to 2 sub-families of main family Gryllidae were identified throughout the period under study. The details of identified species from Hyderabad District and its adjoining areas like Jamshoro, Tandojam, Mirpur Khas, Kotri and Husri localities are shown in Table-1.

Table-1. Cricket species found during survey at different localities of Sindh.

TAXA **Sub family:** Gryllinae	**LOCALITIES**
Genus: *Acheta* Fabricius *1. Achetathoracica* Saeed *et al* *2. Acheta domesticuss* (Linnaeus 1758)	Hyderabad, Jamshoro, Tando Jam and Mirpur Khas. Hyderabad, Jamshoro, Tando Jam and Kotri.
Genus: *Callogryllus*Sjostedt. *3.Callogryllus saeedi* Malik *et al* *4.Callogryllus ovilongus* Saeed *et al*	Hyderabad, Jamshoro, Tando Jam. Hyderabad, Jamshoro, Tando Jam and Mirpur Khas.
Genus: *Turanogryllus* Tarbinskii *5.Turanogryllus pakistanus Ghouri et al* *6. Turanogryllus bullahi Saeed et al.*	Hyderabad, Jamshoro and Husri Hyderabad, Jamshoro, Tando Jam and Mirpurkhas.
Genus: *Phonarellus* Gorokhov *7. Phonarellus minor*	Mirpurkhas, Hyderabad, Tando Allahyar Kotri, and Jamshoro.
Genus: *Gryllus* Linnaeus *8.Gryllus bimaculatus* De Geer	Mirpurkhas, Hyderabad, Husri, Jamshoro, and Tando Jam.
Genus: *Platygryllus* Chopard *9. Platygryllus bruuneri* (Saussure)	Hyderabad, Jamshoro, Tando Jam, Husri and Mirpur Khas.
Genus: *Gryllopsis* (Chopard) *10. Gryllopsis virgulata* (Bolivar) *11. Gryllopsis sexlineata*	Tando Jam. Hyderabad, Tando Jam and Kotri.
Genus: *Modicogryllus* Chopard *12. Modicogryllus blennus* (Saussure) *13. Modicogryllus baroculus* Saeed *et al*	Hyderabad, Jamshoro. Hyderabad, Jamshoro, Husri and Kotri.
Genus: *Gryllodes* Saussure *14. Gryllodes sigillatus* (Walker) *Sub family: Nemobiinae.*	Hyderabad, Jamshoro, Tando Jam and Kotri.
Genus: P*teronemobius* Jacobson and Bianchi *15. Pteronemobius concolor* (Walker)	Hyderabad, Jamshoro, Tando Jam, Husri

Discussion

The survey of cricket species in different areas of Sindh showed that almost 15 cricket species were observed in all areas. However, almost all species were seen in Hyderabad District. The study also showed that crickets were present in almost every place that was surveyed. However, Chopard (1969) described species belong to 12 families of Grylloidea from Pakistan and adjacent countries. Bhowmik (1971); Tandon and Shishodia (1972); Vasanth *et al.,* (1975) identified several new species of family Gryllidae from India. Latif and Asghar (1957); Ghouri and Ahmed (1959); Ramzan (1984); Qayoom *et al.* (1987)

Saeed and Yousuf (1990); Abdullah (1995); Saeed (2000) identified the fauna of crickets of Pakistan but most of the workers collected material from Punjab, as far as Sindh concerned only references of Karachi, Badin and Sukkur can be found in the literatures.

Conclusion

The present study concluded that medium Crickets were observed in most of the areas including Hyderabad District. Crickets were also found on all the places that were surveyed in this study.

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