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A report of a new species of short horned grasshopper (Orthoptera:Acridoidea) of genus *Neophlaeoba* Usmani & Shafee (1983) from Patna, Bihar, India

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Abstract: - The genus *Neophlaeoba* has been first established by Usmani & Shafee in 1983 as a world record from India and is represented by only two species- *Neophlaeoba walayarensis & N. maculata.* During the course of field survey of central Bihar, especially Patna district, a new species viz. *N.patnaensis* sp.n. has been found which sharply differs from established two species in its important morphological and genitalic characters. The species is being described with six illustrations and a revised key to accommodate the new species.

Key words: - Genitalic character, Acridid taxonomy, *Neophlaeoba patnaensis* sp.n.

INTRODUCTION

Grasshoppers in general have been known to be widely distributed from sea level to snowy mountains with significant economic importance, whereas the genus *Neophlaeoba* is of right-winged families of the field frogs (Acrididae). The scientific name of this gender was first published by Usmani & Shafee in 1983[1]. They are considered to be serious pests of paddy and lentil (masoor) in India and in other countries where these crops are grown and notable taxonomical work on this group has been done by Bei-Bienko and Mishchenko (1951)[2]; Uvarov (1966)[3]; Hollis (1968)[4]; Ajaili et al. (1989)[5], Usmani and Shafee (1990)[6], Zheng and Wei (2000)[7], Zheng Zhe Min and Sun Hur Min (2008)[8], Usmani (2008)[9] and Nayeem and Usmani (2011)[10].

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MATERIALS AND METHODS

The specimens were collected preserved in 70% alcohol. Dry mounts were also prepared for better understanding of certain characters like size, colour, texture etc.

For detail study of various components of genitalia, the apical part of male and female bodies were cut off and boiled in a test tube containing 10% KOH solution till the material became transparent. This was later washed thoroughly in water for complete removal of KOH. Later, it was dissected under binocular with the help of fine needles to separate various components viz., subgenital plate, ovipositor and spermatheca of female; supra-anal plate and cerci, epiphallus and aedeagus of male. The normal process of dehydration was adopted and clearing was done in clove oil. The genitalic components were mounted separately on slides in Canada balsam under 22 mm square cover glass. The slides were kept in a thermostat at a temperature of approximately 40°C for about one week to make them completely dry. The permanent slides were examined under the microscope in order to make a detail

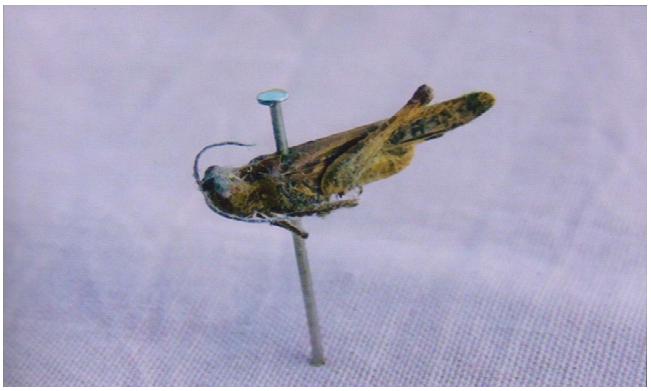

Fig.1 (A) - Adult male of *Neophlaeoba patnaensis sp.n.*

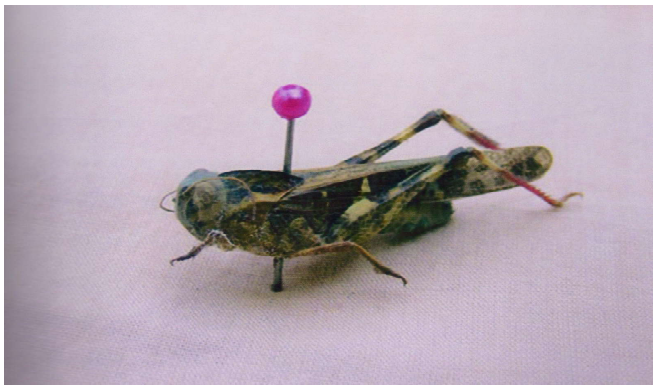

Fig. 1 (B) - Adult female *Neophlaeoba patnaensis sp.n.*

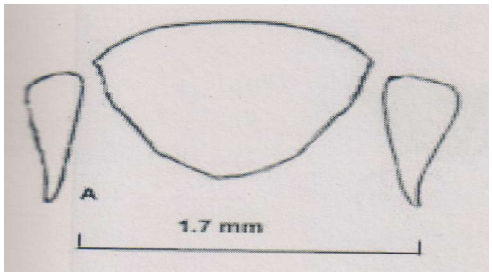

Fig.2(A_1) - Supra-anal plate & cerci (male)

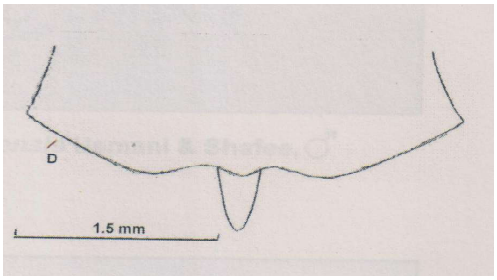

Fig.2(B_1) - Subgenital plate (female)

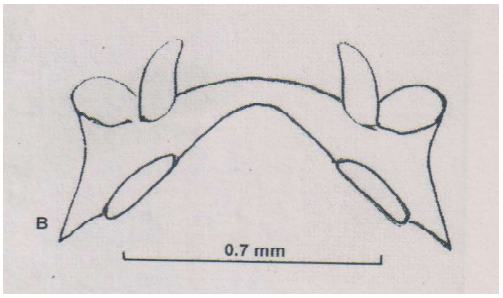

Fig.2(A_2) - Epipahallus (male)

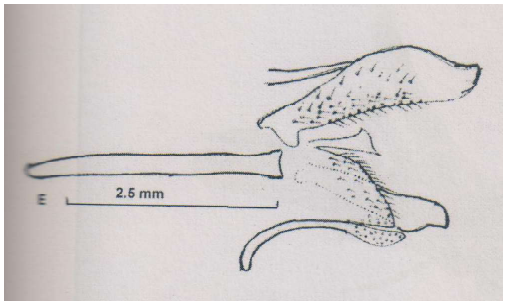

Fig.2(B_2) - Ovipositor (female)

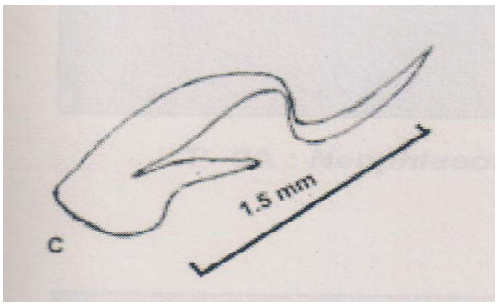

Fig.2(A_3) - Aedeagus (male)

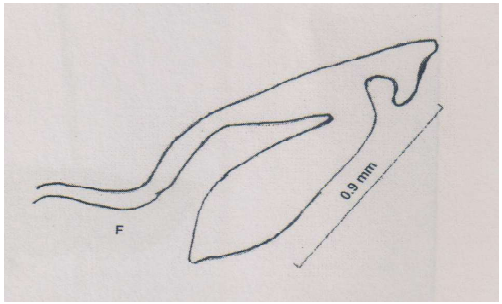

Fig.2(B_3) - Spermatheca (female)

Fig. 2- Genital structures of Male ($2A_1$-$2A_3$) & Female ($2B_1$- $2B_3$) of adult individuals

study of genitalic structures. Drawings were made with the help of Camera lucida.

RESULTS & DISCUSSION

The genus *Neophlaeoba* has been recently erected and described by Usmani & Shafee in 1983, from India as world record. This is represented by only two species-*walayarensis & maculate* established by the authors. Surprisingly no report of occurrence and distribution of the genus with either of the two species have been reported from any corner and since then this As *Neophlaeoba* has been a source of anxiety for Acridid taxonomists throughout the world due to its notoriety.

The present work was undertaken to survey the grasshoppers of Jharkhand and Bihar by visiting the agricultural fields. During the survey other groups of grasshoppers were also encountered but special focus has been given on the *Neophlaeoba* Usmani & Shafee belonging to the subfamily Acridinae. It was observed attacking the crops of paddy and lentils,and was also seen infecting the vegetables such as brinjal, ladyfinger and tomato. The subfamily Acridinae is characterized by Body small to large, laterally compressed; head acute, sometimes obtusely conical; frons oblique; pronotum with median and lateral carinae well developed; prosternal process generally absent; tegmina and wings fully developed or shortened; medial area of tegmen usually without intercalary vein; stridulatory mechanism absent; tympanum present; hind femur without stridulatory pegs on inner side, lower basal lobe shorter than upper one; hind tibia without external apical spine; arolium large; male cercus narrow-conical, with rounded apex; epiphallus, basal and apical valves connected by flexure, basal valve with well-developed gonopore process; female ovipositor, short, slightly curved, valves not toothed; spermatheca, apical diverticulum short, pre-apical diverticulum sac-like. The subfamily Acridinae is represented by eleven genera from India. Two genera *Acrida* and *Neophlaeoba* including one new species *N. patanensis* is being reported by the author from Bihar & Jharkhand.

The main objective of the work is to identify the different species of *Neophlaeoba* encountered in the survey along with their hosts.

Body of small size; antennae flattened in basal hail, shorter than head and pronotum together; head never elongate; fastigium of vertex angular, slightly concave, with lateral carinulae, vertex without madian carinula; fastigial foveolae present; frons oblique: frontal ridge shallowly depressed with low, obtuse lateral carinulae diverging downwards; dorsum of pronotum granulose, slightly tectiform, median carina well developed, crossed by posterior transverse sulcus, lateral carinae well developed and sub-parallel; metazoan distinctly shorter than prozona, posterior margin obstusely rounded; posternal process absent; mesosternal interspace open; tegmina and wings fully developed; hind femur short; arolium small. Male genitalia: supra-anal plate broadly triangular, apex obtuse, circus gradually narrowing apically and downwcurved (fig. 2A); subgenital plate short; epiphallus (fig. 2B), bridge narrow, undivided medially, ancorae large, lophi lobiform; aedeagus (fig. 2C), apical valve shorter and much narrower than basal valve. Female genitalia: subgenital plate (fig. 2D), posterior margin wavy and without setae; ovipositor (fig. 2E), dorsal valve shorter than lateral apodeme, apical tips blunt; spermatheca (fig. 2F), apical diverticulam sac-like, apex acute.

REFERENCES

1. **Usmani, M.K. & S.A. Shafee S.A.B. 1983.** A new genus and two new species of the subfamily Acridinae (Orthoptera: Acrididae) from India. Bulletin of Swiss Entomological Society 56: 401-403.
2. **Bei-Bienko, G. Ya and Mishchenko, L.L. 1951**. Acridoidea of the USSR and adjacent countries. *Opred. Faune SSSR, Moscow*. pp. 567-568.
3. **Uvarov, B.P. 1966.** Grasshoppers and Locusts. A Hand book of General Acridology. Cambridge, XI + 481pp.
4. **Hollis, D 1968.** A revision of the genus Aiolopus Fieber (Orthoptera: Acridoidea). Bull. Brit. Mus. Nat. Hist. (Ent.). 22(7):309-352
5. **Ajaili,A.A., Usmani, M. K. and Furet, I. 1989**. Survey of grasshoppers and Locusts (Orthoptera: Acridoidea) in Al Shaiti, Libya. *Ind. J. Syst. Entomology*. 6(1): 1-17.
6. **Usmani, M.K., and Shafee, S.A. 1990**. Classification of Indian Acrididae (Orthptera: Acridoidea*). Indian I. Syst. Ent*. 7(2):89-102.

7. **Zheng, Z. M., and Wei, S. Z. 2000.** A new species of the genus Aiolopus Fieber from China (Acridoidea: Oedipodidae). Journal of Hubei University. 22(2):197-198

8. **Zheng Zhe Min & Sun Hur Min 2008.** A taxonomic study of the genus Aiolopus Fieber (Orthoptera, Oedipodidae) from China with description of a new species. *Acta Zootaxonomica Sinica*. 33(4):660-663.

9. **Usmani M. K. 2008**. A new species of the genus Aiolopus Fieber (Oedipodinae: Acrididae) from Libya. *Insecta Mundi* 0041:1-14.

10. **Nyeem, R. and Usmani, M.K. 2011**. Diversity of Acridoidea (Orthoptera) from southern and southwestern region of Bihar, India. *Folia Heyrovskyana, Series A.* 19(1-4):5-12.

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