



Karyological and meiotic studies in seven species of Coreinae (Hemiptera: Heteroptera: Coreidae) from North India

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Abstract

Coreinae, the largest subfamily of Coreidae, is distributed worldwide but is most abundant in the tropics. Cytogenetic data is available for 122 species, which include 40 from India. In the present paper, 7 species of Coreinae have been cytogenetically investigated for the first time for their diploid chromosome complement and for meiosis. Also, this is the first cytogenetic report for the genera *Prionolomia* and *Petalocnemis*. The modal diploid chromosome complement of the family Coreidae is $2n=21=18A+2m+X0$. The present study on 7 species shows the diploid chromosome complement to vary from 15 to 27. Microchromosomes are present in 6 and absent only in 1 species. The sex determining mechanism is X0 in 5 and X_1X_20 in 2 species. The decrease in autosome number (14A) has been accompanied by 2 pairs of extremely large autosomes (*Anoplocnemis binotata* Distant and *Cletus borealis* Blöte) and the increase in autosome number (22A, 24A) has been accompanied by distinctly small autosomes (*Petalocnemis obscura* and *Prionolomia* sp.) in the complement. The behavior of chromosomes during meiosis is typical of Coreidae. Deviations wherever recorded are discussed. During diplotene, chiasmata are located terminally and there is a predominance of a single chiasma per bivalent. However, in *Anoplocnemis binotata* and *Cletus borealis*, one or both of the large bivalents show two terminal or subterminal chiasmata in diplotene. A regular arrangement of chromosomes is observed during both metaphase I and II: all the autosomes form a ring with microchromosomes lying inside and sex chromosomes lying outside the ring.

Key words: Autosomes, sex chromosomes, microchromosomes, metaphase I, metaphase II

Introduction

The family Coreidae, often called leaf-footed bugs, pod bugs or squash bugs, includes 2200 species belonging to 500 genera (Dursun & Fent 2009). Coreids are worldwide in distribution but are more abundant in the tropics and sub-tropics; they are divided into 4 subfamilies: Coreinae, Pseudophloeinae, Meropachyinae and Agriopocorinae (Schuh & Slater 1995). Of these 4 subfamilies, cytogenetic data is available for 127 species in only 2 subfamilies, Coreinae and Pseudophloeinae (Kaur & Bansal 2012a; Yang *et al.* 2012). The family is characterized by holocentric chromosomes, post-reductional division of sex chromosomes, a pair of microchromosomes and absence of a Y chromosome.

Coreinae, the largest subfamily of Coreidae, is distributed worldwide but occurs mostly in the tropics. Cytogenetic data is available for 122 species, including 40 from India. The most common diploid number of the subfamily is 21, observed in 48 species. A pair of microchromosomes is present in 92 species. X0/XX (male/female) is the dominant sex mechanism, but X multiplicity is fairly represented in the subfamily (Ueshima 1979; Papeschi & Bressa 2006; Kaur & Bansal 2012a; Yang *et al.* 2012). In the present study, 7 species from North India have been added to the pre-existing cytological data.