ABSTRACT

Aphids or plant lice are hemipteran insects and important ectoparasites of plants. These soft bodied phytosuccivorous insects draw plant sap for their nutrition, growth and reproduction. They are very common pests of many economically important plants and having the ability to reproduce both sexually and asexually they become numerous within a short time span. Aphid diversity, abundance, host association and life cycle patterns vary in different zoogeographic zones of India. Aphids are temperate climate loving insects and abundant in hilly regions. The Himalaya is the youngest mountain system having life at high altitude and one of the four hotspots located in India. Himalayan vegetation includes a large number of ecologically and economically significant tree plants that are infested by different aphid species. Aphids cause various plant damages and affect plant growth and production. Due to polymorphism, host alternation and polyphagous habit of these insects identification of aphids becomes difficult. The present work was conducted to explore the tree infesting aphids of the Himalaya. Through extensive field survey aphid specimens were collected and their identification and taxonomical analysis were done. Synoptic list of aphids representing the area and key for the aphids infesting each family of trees found in the Himalaya were prepared. A total of 295 species of aphids belonging to 100 different genera distributed among 13 subfamilies under the Family Aphididae were recorded in the entire range of Himalaya. There is one genus including 5 species of aphids infesting on Himalayan tree in the Subfamily Aiceoninae, in Subfamily Aphidinae there are maximum number of aphids: 86 species under 35 genera, Subfamily Calaphidinae includes 17 genera and 33 species, in Chaitophorinae 4 genera and 22 species are found. Subfamily Drepanosiphinae in the study includes only 4 different species of aphids under 2 genera. There are 10 genera and 28 species in Subfamily Eriosomatinae and 7 genera containing 60 species in Subfamily Greenideinae. In Subfamily Hormaphidinae there are 12 genera and 17 species and in Subfamily Lachninae 8 genera and 30 species were found. Subfamilies Mindarinae, Pterocommatinae, Taiwanaphidinae and Thelaxinae in the area of study include only one genus each. In Subfamily Thelaxinae there is only one species, Mindarinae and Taiwanaphidinae include two aphids each, whereas in Pterocommatinae there are 5 species under a single genus. A general account of these aphid species and the genera they belong to is provided in the work. Three new species recorded in the study are: Yamatochaitophorus sp., Sp. nov. belonging to Subfamily Chaitophorinae infesting Acer candida; Cinara sp. A Sp. nov. belonging to Subfamily Lachninae infesting Juniperus squamata and Cinara sp. B Sp. nov belonging to Subfamily Lachninae infesting Taxus baccata. Association of Predators and Parasitoids with specific aphids has been recorded so that these natural enemies may be utilized in future for their biological control.