Asian J. of Bio Sci. (2007) Vol. 3 No. 1 : (195-203)

Studies on Seasonal activity of insect pests associated with high altitude agriculture, horticulture and forestry ecosystems of Kashmir Himalaya by utilizing fluorescent light trap

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(Accepted : March, 2008)

This work incorporates detailed field observations on seasonal activity of insects damaging valuable agricultural crops, horticultural and forestry plantation and other economically important plants, occurring at high altitude regions of Kashmir Himalaya by utilizing light-trap (12 volt fluorescent light source) operated through solar power battery, conducted during different seasons of 2002-2003. The light- trapping experiment has yielded 2383 insect pest individuals, belonging to five orders (Coleoptera, Hemiptera, Homoptera, Lepidoptera and Orthoptera), incorporating 54 species, belonging to 37 genera under 16 families. The population abundance and seasonal flight activity of various species captured has been studied. The predominant insect species recorded was *Adoretus* sp. (scarabaeid) followed by *Mythimina* sp. (noctuid). The abundant species belonging to different families and orders, in order of decreasing dominance were *Euproctis* spp. (lymantrid), *Brahmina* spp. (scarabaeid), *Lacon* spp.(elaterid), *Epilachna* sp. (coccinellid), *Anomala* spp.(scarabaeid), *Pycna repanda* (cicadid), *Agrotis* spp. (noctuid). The seasonal flight activity of the least abundant species trapped with 1 to 50 representative individuals has also been studied.

Keywords:- Seasonal activity, light trapping, Kashmir Himalaya

INTRODUCTION

The Valley of Kashmir is about 187 Kms long and 3.5 to 30 Kms wide, located at a height of over c 2770 meters above sea level, being surrounded on almost all sides by mountain ranges, varying in height, the highest being c 5550 meters above sea level. The Kashmir Valley has a total geographical area of 15948 square Kms and it falls between $32^0.22^/$ to $34^0.43^/$ North latitude and $73^0.52^/$ to $75^0.42^/$ East longitude. The temperature of Kashmir varies from -14^0C in winter to 35^0C in summer. Weather shows marked seasonality, summers are much less rainy than spring and quite warm (Raina, 1977; Hussain, 1987). In Kashmir, both the maximum and minimum temperature starts falling by August and quite low by October. By the end of December, the Valley usually experiences snow, which gradually disappear by the end of February and rains replace snow in spring. The Jammu & Kashmir State is situated in the sub- tropical latitudes, but due to its location, owing to physical barriers *i.e.*, the high-mountain ranges, the Valley gets cut–off geographically from the Jammu & Ladakh region and unlike these two regions, maintains a temperate climate.

In Kashmir valley, all agricultural crops, including economically important plants, *viz.*, cereals, pulses, fruits, vegetables, fodder, forages, oil seed, ornamental, medicinal and forest range plantations, are known to be damaged by a number of insect species. These insect pests can be broadly classified in to three groups, *viz.* borers, foliage destructing insects and defoliators. They inflict damages to plants in a number of ways, including malformation of various plant parts, gall formation, destruction of foliage, stunted growth, leaf curling, and obstruction in assimilation, wilting and sometimes collapse of a plant. Due to these damages, there is the reduction in crop yield or death of economic plantations. In addition to these damages, some insects during their attack prefer saplings and young plants, some attack older ones, others infest unhealthy and dying trees, and still others prefer dead material, while some attack even rotten wood.

It was, therefore, suggested that under present work, a preliminary survey, seasonal activity of insect pests of some crops and economically important plants in Kashmir Himalaya be carried out. Earlier, in Kashmir Himalayan

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