Abstract

In the fifth instars and adults, six haemocyte classes have been identified on the basis of their distinctive morphological and cytological characteristics as studied under light microscope [LM]. They are PRs, PLs, GRs, ADs, OEs, and VEs. The Total Haemocyte Count [THC] in Fifth instars, The THC steadily increases from day 0 to reach at maximum peak on day 3 after that it declines up to day 5 and moulting occurs. The trends of THC are same in both sex. The higher THC reported in females than males. The THC in the adult female steadily increases from day 0 up to 2 declining thereafter up to day 5. It increases significantly. The THC in the male remains at a lower level than that of female. The Differential Haemocyte Count [DHC] in Fifth instars in females the PRs- From day 0 to day 2 increases after that decreases. The PLs- steadily increases from day 0 to day 5 i.e. just before moulting reaching at maximum. Its population dominated among all other haemocytes. The GRs- From day 0 to decreases up to day 5. The ADs- slightly increasing trend from day 2, population lowers in comparison to others. The OEs- appear from day 2 to increases up to day 5 but population lowers to ADs. The VEs- Only appear on day 4 it population remains lowest. In males the trends of PRs, PLs, GRs, ADs, OEs, and VEs are same. In males PLs, GRs, slightly lower in comparison to female, while ADs, OEs, and PRs slightly higher than female. Starvation caused drastic reduction in THC on day 4. Starvation caused drastic decrease in PLs population on day 3. But increase in population of GRs, OEs, and VEs. Temperature at low 4 °C caused drastic lowering of THC in both females and males. At high temperature, the THC starts with lowest count in day 0, significantly increases up to day 2, than it fluctuated. The higher THC were recorded in fifth instars of both sex to the
controls. The 10 micro liter saline [Insect Ringer] injection caused no significant effect on THC and DHC of fifth instars of both sex in comparison to the controls. THC in the nervectomised females steeply decline from day 0 to day 3 after that improvements in THC recorded. The THC in controls is significantly higher. No significant difference is found in the THC between the nervectomised males and females except that the THC in the former is higher to those of the latter. The effect of antibiotic, the newly emerged adults [0 hr] were collected and then by surgery a severe wound was made near neck region after that mixture of antibiotics [Pencilline-Streptomycine] dissolved in insect ringer was given to affected adults. The THC and DHC at 24 hr interval were recorded up to day 8. The THC insignificantly lower to the re controls. THC from day 1 to increasing up to day 8. On DHC, PRs- The PRs population in the female is maximum in the newly emerged adult. It gradually declines reaching its lowest on day 7. Its population always lowers in respect to the controls. The PLs population from day 1 to increasing up to day 6 and it significantly higher in respect to the controls. The GRs population also follows the increasing trends from day 1 to day 6. Its population higher to the controls. The ADs population follows decreasing trends from day 1 to day 6. Its population significantly lowers to the controls. The OEs appeared from day 1 to continue up to day 8. Its population lowers to the controls. The VEs Lowest in count and only seen on day 2 and 3. It not recorded in controls on day 2 and 3. The effect of antigen, the adults [0 hr] of both sex were collected and they were exposed an antigen [JHA, R-394, ethyl 9- cyclohexyl-3, 7- dimethyl-2, 4- nonadioenoate] dissolved in acetone and it topically applied in the dose of 10 mg/ml acetone on the thorax. The THC and DHC were recorded at 24 hr intervals up to day 8. In affected females THC significantly
declines up to day 3, thereafter THC improves up to day 6. It was insignificant to the controls. In the affected males THC trend was same as females. On DHC, The PRs population gradually declines from day 0 to day 8. Its value slightly higher to the controls. The PLs population up to day 3 higher in affected females to the controls. Thereafter PLs declines up to day 4 thereafter again improve. The GRs population declines up to day 3 after that improved up to day 8, it lowers in comparison to the controls. The ADs population fluctuating throughout observed period. The OEs population higher in affected females then to the controls. The VEs appeared on day 3 and continue up to day 8. Its populations marginally higher to the controls.

The DHC in males almost like to females except slight variation in PRs and ADs were recorded.