

SUMMARY

Investigation of activity of different pharmaceutical formulations including coumaphos against naturally infested *varroa jacobsoni* in honeybee colonies and analysis of the residues in honey.

Beekeeping is a branch of agriculture which can be done with low capital and low expense without depending on land; can be yielding in a short time and it provides an increasing income of the farmers, are living in the villages which are in and edge of the forest, who have got land and without land. Beekeeping is a socio-economic activity that is done as a tradition since many ancient years in Turkey. There are many infectious and parasitic diseases on honey bees as all living organisms. Varroa is an important disease for bees in Turkey and all over the world.

With this study, the easiness of use, effects on varroa and residues in honey are investigated with making comparison of the usage of different pharmaceutical formulations (tablets, strip, solution) which contain coumaphos. In the study; 20 pieces of langstroth type hives, which have got pollen bottom drawers, including varroa trap, grid, 5 cm depth with 3,5 mm spaced with a special wire mesh, are used for blocking the pass of bees, and preventing the reaching of the varroas, which are falling down, to the bees again. Indigenous bees which have high abilities for producing honey and strong breeds in winter conditions are used as a bee race. As a part of study, chemical application was made in April when bee breeds are less to evaluate the situation of residues in honey and 3 different pharmaceutical formulations including coumaphos substance with *V. Jacobsoni* in naturally infested colonies. Varroas were counted with *V.jacobsoni* by taking a certain number of honey bees with caster sugar before naturally infested colonies were taking into the experiment. According to *V.jacobsoni* counting, groups were equalized; drawers of pollen were cleaned and covered with white paper, at last the parasites that were falling in this area were counted before the treatment. According to counting, four groups will be formed; Group 1 tablets, group 2 strip and group 3 solution chemical was injected a stated prospectus. Group 4 was left without treatment and accepted as a central group. 5 hives were used for each group. The applied substances are the chemicals which have different pharmaceutical formulations, include active coumaphos substance. The percent degrees of the chemicals are calculated with using the formula of Henderson-Tilton to

evaluate the gathered datas. According to this, tablets 99%, 97,63% of strip and 96% of solution were found effectively.

Some analyses were done to identify the active substance rates of the chemicals which contain caumaphos. According to the results; The active substance amounts were determined as 524 mg/tablet in the form of tablet, 9,3% in the form of strip and 34 mg/ml in the shape of solution. It is determined as a result of the analyses of the honey samples which has taken during June and July; For the amount of residue in the form of tablet 6,01 ppb in June and 3,00 ppb for July; for the form of strip 13,29 ppb in June and 2,05 ppb in July; for the shape of solution 8,71 ppb in June and 3,81 ppb in June.

Key Words: Coumaphos, Honey, Honeybee, Pharmaceutic, Residue, *Varroa jacobsoni*.