

## **BIOLOGICAL EFFICACY OF THE NEEM OIL FOR THE CONTROL OF *APHIS GOSSYPHII***

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The role of insecticides in human society is very important. Phytophagous insects can cause losses of 10 to 90% of cultivated crops. In addition to affecting crop growth, harmful organisms can subsequently damage stored crops. However, using of synthetic pesticides has a direct negative effect on human and animal health. Also, the excessive or inappropriate use of synthetic insecticides causes biodiversity loss and occurrence of pests' resistance to these substances. The use of secondary metabolites synthesized by some plant species as part of their natural self-defense against pathogens and pests seems to be an excellent alternative to synthetic insecticides.

In our study which took place during the 2021 year we tested the biological efficacy of neem (*Azadirachta indica* A. Juss) seed oil on *Aphis gossypii* populations. The treatment was performed under laboratory and greenhouse conditions using cucumber (*Cucumis sativus* L) plants. Regarding the laboratory research the cucumber seedlings were planted in a greenhouse and infected with aphid populations transferred from a natural agroecosystem. Samples were collected from cucumber leaves in the greenhouse. The leaf blades inhabited by pests were placed in Petri dishes in 4 variants and 4 replicas for each variant. Counting of dead individuals was performed next day after treating the samples with extracts working solutions. The solutions were prepared in 0% (control), 0.1% and 0.5% neem oil concentrations while 1% ecological Pelecol insecticide was used as a standard. In the greenhouse experiments the aphids inhabited cucumber plants naturally. The plants were also treated with four variants (each variant in three repetitions): experimental variants - neem oil in two doses (8 Litre per Hectare (L/ha) and 10 L/ha), standard (Pelecol EO – 10 L/ha) and control.

The laboratory experiments showed strong aphicide effects (especially the highest concentration variant) the pests dying before they could leave the treated cucumber leaves. The greenhouse studies confirmed the potent insecticide action and they showed also a moderate repellent effect. The extract inhibited aphid feeding for a period of 5-7 days but was not able to completely inhibit the consumption of plants. The neem oil in a dose of 10 L/ha recorded highest biological efficiency - 90.05% (this was slightly higher than Pelecol result - 89.09%) and has the potential to be used as an aphicide.

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