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MONITORING AND MORPHOLOGICAL ANALYSIS OF THE CITY LONGHORN BEETLE BEETLE (AEOLESTHES SARTA SOLCK) IN POPLAR FIELDS OF THE FERGANA REGION, UZBEKISTAN

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Abstract:

This study investigates the damage caused by the City longhorn beetle beetle (Aeolesthes sarta Solck) in poplar fields within the Dasht MFY area, Baghdad district, Fergana region, Uzbekistan. The research includes a detailed morphological analysis of the beetle, focusing on specimens collected from infected trees. Our findings reveal significant damage to both ornamental and fruit trees, with potential economic and environmental impacts. This paper discusses the lifecycle, infestation characteristics, and control measures for the City longhorn beetle beetle, highlighting the importance of effective pest management strategies.

Keywords: City longhorn beetle, Aeolesthes sarta, poplar, pest management, morphological analysis, Cerambycidae, tree damage, Uzbekistan.

INTRODUCTION.

Background: The City longhorn beetle beetle (Aeolesthes sarta Solck) is a prominent pest belonging to the Cerambycidae family, which comprises over 20,000 species worldwide. These beetles are notorious for damaging forests, orchards, ornamental trees, and certain agricultural crops. In Uzbekistan, more than 50 species of longhorn beetles are identified, with 22 species causing significant damage to the trunks and branches of fruit and ornamental trees.

Importance: City longhorn beetle is widespread across Central Asia, India, Pakistan, Iran, and Afghanistan. The beetle infests a variety of tree species, including poplar, willow, elm, sycamore, walnut, and fruit trees, causing severe economic and ecological damage. Effective pest management is crucial to mitigate these impacts.

Objective: This study aims to observe the damage caused by the City longhorn beetle beetle in poplar fields of the Dasht MFY area, analyze the morphological characteristics of the beetle, and evaluate potential control measures.

METHODS.

Study Area: The research was conducted in February 2024 in poplar fields located in the Dasht MFY area, Baghdad district, Fergana region, Uzbekistan.

Sampling: Infected trees were identified through visual inspection. Beetle specimens were collected from these trees for detailed morphological analysis. The collected samples included various life stages of the beetle.

Data Collection: Morphological measurements were taken using standard entomological methods. The parameters measured included head length, thorax length, abdomen length, total body length, antenna length, and the number of antenna segments.

Data Analysis: The collected data were tabulated and analyzed statistically to determine the average dimensions and variability of the beetle's morphological features.

RESULTS.

Morphological Measurements: The following table summarizes the morphological measurements of the City longhorn beetle beetles collected from the infected trees:

№	Head Length (mm)	Thorax Length (mm)	Abdomen Length (mm)	Total Length (mm)	Antenna Length (mm)	Antenna Segments
1	9	9	35	53	40	10
2	11	9	33	53	42	10
3	10	9	34	53	93	10
4	10	9	34	53	95	10
5	9	9	35	53	38	10
6	9	8	27	44	62	10
7	8	8	22	38	52	10

8	5	6	25	36	32	10
9	8	7	23	38	50	10
10	7	7	27	41	35	10

Observation: The beetles' antennae are highly developed, with some being twice the length of their bodies. The larvae are white with a muscular thorax and sparsely hairy abdomen, aiding their movement within tree trunks. Severe infestation results in stunted tree growth and potential death.

DISCUSSION.

Impact on Trees: Infested trees are more prone to breakage, posing a danger in urban areas. Damaged wood from these trees is unsuitable for construction due to internal holes, rendering it low quality.

Lifecycle: The City longhorn beetle beetle completes its lifecycle over two years. In the first year, larvae fully develop, pupating in October of the second year. Adult beetles emerge from late April to early June, with females laying up to 270 eggs under tree bark.

Pest Control: Effective control measures include removing and cleaning infected and broken trees along roadsides, nurseries, and forested areas. Chemical control using insecticides containing alpha-cypermethrin, acetamiprid, and deltamethrin is effective when applied in the evening, as beetles are nocturnal.

RECOMMENDATIONS: Continuous monitoring and integrated pest management (IPM) strategies are essential to control the City longhorn beetle beetle population. Further research is needed to develop environmentally sustainable control methods.

CONCLUSION.

The City longhorn beetle beetle poses a significant threat to various tree species in the Fergana region, causing substantial damage and economic losses. Effective monitoring and control strategies are crucial for managing this pest and protecting urban and rural tree populations.

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