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Physiological Changes of Silkworm (*Bombyx mori* L.) Larvae Fed on Mulberry Leaves Supplemented with Nitrogenous Compounds

Kayvan ETEBARI[*] Rahim EBADI[**] Leila MATINDOOST[***]

[*]University of Guilan, Faculty of Natural Resources, Department of Sericulture, Somehe sara, IRAN, e-mail: etebari@guilan.ac.ir
[**]Isfahan University of Technology, Faculty of Agriculture, Department of Plant Protection, Isfahan, IRAN
[***]University of Guilan, Faculty of Agriculture, Department of Entomology, Rasht, IRAN

ABSTRACT

Effects of mulberry leaves supplementation with three nitrogenous compounds on silkworm, *Bombyx mori*, larvae were analyzed. Dietary supplements of glutamic acid (0.5, 1 & 1.5%), glycine (0.5, 1 & 1.5%) and urea (0.01, 0.1 & 1%) were fed to silkworm larvae through 1st to 5th instar. The larvae were fed by mulberry leaves of Kokusou variety and the supplementary leaves were used once a day. These compounds showed significant changes in larval parameters such as larval weight and nutritional indices but these nitrogenous compounds could not improve the economic trait of silkworm. In some groups of larvae where the nutritional indices had been improved, the amount of cholesterol and triacylglycerol in the hemolymph increased significantly and the supplementation in these groups had a great influence on the amount of glucose in the larval hemolymph.

Key words: *Bombyx mori*, glutamic acid, glycine, urea, nutrition.

INTRODUCTION

The requirement of different nitrogenous compounds in various insects has been investigated. Nitrogen as the major element of amino acids plays an important role in the insect's physiology (House, 1974). The silkworm, *Bombyx mori* L. derives almost all the nutrients required for its growth from the mulberry leaf.

For the synthesis of fibroin, the main component of the silk, large amounts of nitrogen are needed for the last larval instar. The silkworm (*Bombyx mori*) ingests