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Review Paper

BIOTECHNOLOGICAL ADVANCES IN SERICULTURE, SILK PROCESSING AND RESOURCE SAVING IN UZBEKISTAN

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ABSTRACT

This review exposes the long trails of exploratory investigations and intensive research carried out in the field of sericulture and silk industry in Uzbekistan for a period of thirty years. It highlights the development of biotechnological approaches employed in sericulture, cocoon processing and resource saving in the silk industry. The exhaustive studies comprised of thrust areas *viz*., chemical and biochemical composition of mulberry leaves, mulberry silkworm eggs, larvae, pupae and cocoon shell as well as physiology and biochemistry of nutrition, intricacies of respiration and natural products biotransformation. The recipes and methods of preparation of artificial diets for silkworm on the basis of local raw materials and biotechnology for its mass rearing have been developed besides exploration of fields of its application including space experiments. Methods of bioprotective post harvest cocoon processing and utilization of sericulture and silk industry raw materials and wastes for obtaining new bio- and nano-technological products have been established. As shown by the results of the research conducted, the chosen direction proved to be fruitful enough and its further development will result in a wasteless, diversified and profitable production of high-tech silk products and goods.

Key words: Artificial diet, energy-resource saving, mulberry silkworm, nutrition biotechnology, silk bionanotechnology.