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The Strategy for the Development of Bio-resources Utilizing Sericultrual Products and Insects

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Experiments related to the field of sericulture started in the year, 1900 in the Korea. It was firstly organized as the experimental station compared with the other agricultual fields. Sericulture has been devoted to a great deal for the improvement of Korean economy during the past 100 years even under the coarse social circumstance, caused particularly by the Korean War.

However, the traditional Korean sericulture, aimed to produce silk, was revolutionized from 1995, and the Korean sericulture now plays an important role for the improvement of human health after shifting into functional sericulture .

Mulberry tree, silkworm, and silk are bio-resources to have a boundless potential to be developed. Further, we expect the know-how obtained through the silkworm research expand to the field of other insect research. Thus, an area of entomological industry is hoped to be prospered owing to the research on the insect as well as sericulture.

Because mulberry tree is known to possess many bio-active substances, it can be utilized as the resource for the substitute medicine and the raw material for the functional food. In addition, an invention of genetically engineered mulberry variety, which produces more bio-active substances, is expected.

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Silkworm is one of the most extensively studied organisms on the genome so far. Thus, silkworm is expected to be an "insect bio-factory", enabling mass-production of useful proteins by transformation, in which useful foreign genes are assimilated into silkworm.

Silk can be transformed into several phases, because it possesses useful functional groups, sensitive to chemical reaction. Also, because silk fibrin itself is protein, it has a superior applicability as tissue membrane. Due to these usefulness, many researches are under progress for the development of silk as food, cosmetic, medical resources, and bioengineering resources, and it is hoped to have a further application using silk in the future.

Until now, research on the insect is largely focused on the aspect for the prevention of the damage by pest, instead of beneficial aspect. However, insects are thought to be the forth natural resource in the world with unlimited potential as world resources in the near future. Therefore, our entomological research effort should be focused on the subject with potential for industrialization. Such subject includes selecting insect species useful for environmental evaluation, construction of environment-friendly agricultural ecosystem, pollen mediation, pet, and advanced bio-resources.