

Creation and Development of Wild Silkworm Products for Value Added

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Abstract

The objective of this study aims to evaluate the potential of eri silkworm rearing waste for zero waste utilization, including value added product development. The waste water (WW) from eri silk cocoon reeling was tested as an ingredient in liquid cultured medium (Nutrient Broth, NB) of *Bacillus thuringiensis* var. *kurstaki* (*Btk*). The result indicated that the numbers of colony forming unit per milliliter (cfu/ml) of *Btk* were ranked respectively from maximum of different media as 2.67×10^{10} (NB), 2.90×10^7 (NB+WW of eri silkworm), 1.93×10^7 (NB+WW eri+WW Nang Noi), 1.62×10^7 (WW Nang Noi), 9.97×10^6 (WW of eri silkworm) and 6.90×10^5 (WW of eri silkworm+WW of Nang Noi). For another *Bt* (*B.t* var. *israelensis*) (*Bti*), the NB gave maximum number of cfu/ml of 1.97×10^9 cfu/ml, which significantly different ($P < 0.05$) than other media. The *Bti* cfu/ml cultured in the others were 1.97×10^8 , 3.53×10^7 , 1.93×10^7 , 1.06×10^7 and 1.0×10^6 cfu/ml from NB+WW eri, NB+WW eri+WW Nang Noi, WW Nang Noi, WW eri, and WW eri+WW Nang Noi, respectively. Protein sericin extracted from waste water from eri silk cocoon reeling was used as an ingredient in 3 cosmetics; liquid soap, shampoo, and lotion. The cosmetics were also evaluated for preference, compared to commercial products (based on Hong Huad (2550)). The result showed that the 3 cosmetic products with sericin from WW eri were accepted with preference and comparable to commercial cosmetic.