Red and Blue Silk Threads Obtained from Silkworms Reared on Artificial Diets Containing Rhodamine B and Methylene Blue

Fukumitsu, Nodoka

Staining of silk threads and clothes is widely conducted chemically in factories and industry. However, chemically produced stainings of silk threads and clothes are not always fine and excellent and frequently fading. It is interesting to produce unfading stainings of silk threads by intrinsic colorations of chemical bonds in thread molecules. In order to get colored silk threads, chemical pigments were orally given to silkworms by feeding them artificial diets. Feeding diets without containing mulberry leaf components were first prepared by adding the latex(emulsion) of the sow thistle (Sonchus oleraceus) of the Compositae. Thus prepared diets were quite convenient to give chemical pigments to silkworms, because mulberry leaves contained the obstructing substance of cocoon coloration. By giving several chemical pigments to silkworms through artificial diets, colored cocoons were created. Among them red-colored cocoons were invariably obtained from rhodamine B-incorporated worms and blue-colored ones were from worms given rhodamine B and methylene blue. From these red and blue cocoons, quite beautiful red and blue silk threads were successfully produced without employing genetic manipulation of silkworms. Silk threads with natural blue color were very rare and valuable for silk clothes. The results will make an important contribution to local silk industry.

Awards Won:
Second Award of $2,000