

Agriculture

A Novel Eco-friendly process to induce the silkworm to produce naturally colored silk fiber of desired choice with increased yield

APPLICATION

This project mainly thrives to reduce the usage of carcinogenic synthetic colors that are being used during reeling and dyeing process. A novel technique of forced induction of planar silk is developed which can be exported where there is a requirement of virgin silk and for aesthetic applications.

COMPANY NAME	TECHNOLOGY READINESS LEVEL (TRL)	INTELLECTUAL PROPERTY
Krimmi Biotech LLP	TRL: 7 (Currently running the field trials)	Indian Patent Application No: 202041055270
FOUNDER'S NAME		
Deepak Bajantri		

PROBLEM ADDRESSED

There is a heavy usage of carcinogenic synthetic colours in reeling and dyeing processes in Sericulture industries which is having a detrimental effect in the environment. Moreover, a lot of water is being wasted in the traditional dyeing processes. There is a need of new and advanced processes for silk production and dyeing.

ABOUT THE TECHNOLOGY

The current invention relates to the process of obtaining a naturally colored silk by incorporating natural pigments from plant origin which also acts as a plant silkworm growth promoter. The intended product is provided in a vial which can be mixed with water and spread on the mulberry leaves. These leaves are fed the silkworms during last three days of spinning. The source of pigment, molecular weight and the size are identified for two colors. In addition to this, it is also observed that the current the cocoons fed with natural colours like lutein, curcumin can be used in various sector like biomedical, wound healing, undergarments etc. This process can save more than 60 percent of water being used in the conventional dyeing processes. As a remedy to the current downfall in the cocoon prices, the proposed product increases the larval duration of the silkworm which in turn increases the cocoon yield, cocoon shell ratio and higher filament length.

FUNDS RAISED/ACHIEVEMENTS

- BIRAC BIG grant of INR 50 lakhs
- BIRAC SBIRI Scheme of INR 50 lakhs
- KBITS, GoK-Idea2Poc scheme

PRODUCT IMAGE



Pomgranate Peel



Rhodamine



Rubiya tinctorum



Turmeric

USP

- The cocoons of desired choice spun on spot without any artificial ingredient.
- The silk is forced spun into a planar structure thereby reducing the process of reeling, dyeing and spinning.
- The proposed silk can be value enriched for biomedical applications, undergarments, sports wears etc. through this technique.
- The technique can be implemented at the farmers site with minimal labour and without any high tech or high-cost equipment.

END USERS/CUSTOMERS

- Farmers involved in sericulture, Reeling and textile industries. Revenue Model: Contract Farming, Bulk marketing, FPO's, Retail chain supply, Export