BCIL

Biotech Consortium India Limited

Palash: A Botanical Approach to Natural Dyes

TECHNOLOGY AVAILABLE FOR TRANSFER

UNMET NEED AND OPPORTUNITY

The use of Natural dye has gained popularity due to increased awareness among consumers about the ill effects of artificial dyes and benefits of using natural products for leading a healthy lifestyle. Natural dyes from fruits, leaves, petals, seeds, barks, algae and are actively replacing artificial dyes. The present technology is about production of cost effective and high-yields of natural dye/colourant from flower petals of Butea Monosperma, poulary known as Palash. This plant is widely distributed in North, Central, South and North East India and is known by variety of names in different parts of country such as dhak, bastard teak, bengal kino and tesu. Due to its fire like appearance popularly known as flame of the forest.

UNIQUE SELLING PROPOSITION

- Improved and scalable process for production.
- Organic solvent free dye extraction.
- Low cost due to simple method for product recovery.
- Completely soluble in water producing rich saffron color, pH ~6.5-7
- Powder form, easy to store, stable at room temperature to around 200 °C.
- Clear transparent colored solution when added with water.
- Non- allergic, Non-toxic, Non-Hazardous, Biodegradable.

INTELLECTUAL PROPERTY

Indian Patent Application filed in 2022.

TECHNOLOGY

Butea monosperma (Palash) is recognized for its flowers containing pigments that produce yellow and orange natural dyes. This technology involves a method to extracting natural dyes from Palash flower petals (Butea monosperma) without using any chemical solvents followed by complete characterization of its constituents validated by HPLC. This eco-friendly dye has the potential to be used in many industries, including textiles, pharmaceuticals, medicine, and food coloring.

STAGE OF DEVELOPMENT

The technology has achieved market traction through a successful licensing deal followed by commercial launch as a food dye and stands at TRL-6.

EXPERIMENTAL DETAILS

Detailed Validation data using Ultra Performance Liquid Chromatography (UPLC) for dye constituents and Inductively Coupled Plasma Mass Spectrometry (ICP-MS) for Trace Metal Analysis.

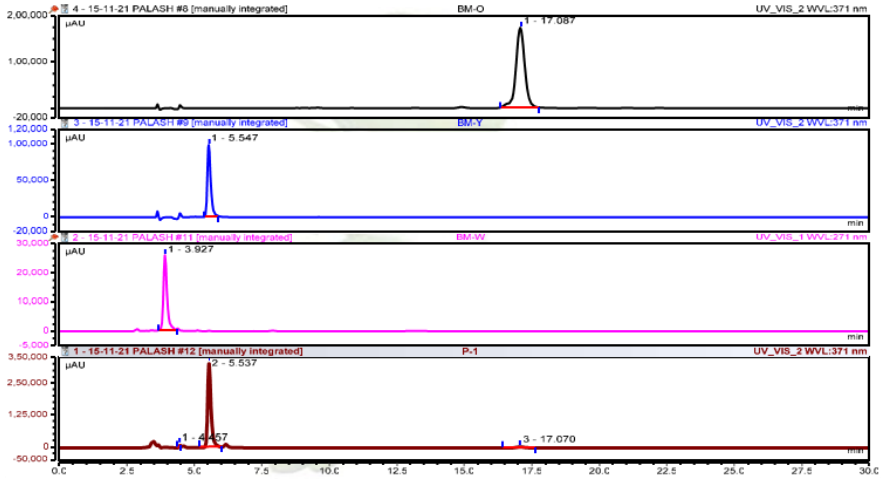

Figure 1. UPLC analysis for detection and quantification of constituents (BM-O isocoreopsin; BM-Y isobutrin; BM-W: butrin and P-1: extracted dye) in dye powder recovered by lyophilization of B. monosperma extract

SAMPLE NAME	CONCENTRATION OF TRACE METALS									
	Pb (ppb)	RSD (%)	As (ppb)	RSD (%)	Cd (ppb)	RSD (%)	Hg (ppb)	RSD (%)	Na (ppb)	RSD (%)
P1-A	2.5	0.002	0	N/A	<0.000	N/A	3.509	2.5	<0.000	N/A
P1-B	0.3	<0.000	0	N/A	<0.000	N/A	2.807	0.3	<0.000	N/A
P1-C	2.4	<0.000	0	N/A	<0.000	N/A	2.334	2.4	<0.000	N/A
P2-A	3.1	<0.000	0	N/A	<0.000	N/A	1.989	3.1	<0.000	N/A
P2-B	3.7	0.004	0	N/A	<0.000	N/A	1.687	3.7	<0.000	N/A
P2-C	4.5	0.017	0	N/A	<0.000	N/A	1.472	4.5	<0.000	N/A

Table indicating that the dye extracted using the proposed method is free from trace metal contamination

LICENSING OPPORTUNITY

BCIL is looking for suitable companies for licensing this technology.

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