PROCESS FOR THE SUSTAINABLE PRODUCTION OF CAMPTOTHECIN

IITM Technology Available for Licensing

PROBLEM STATEMENT

- Metabolites produced by plants have high significance owing to their therapeutic applications in humans.
- **Endophytes**, the microorganisms that reside within the tissues of plants are reported to have the ability to produce their host specific metabolites. And further, **Camptothecin** is one of such metabolites produced majorly from plants, which has demand for **it's anti-cancer activity.**
- **Plants** producing camptothecin are **exploited** in large number to meet the demand.
- Therefore, to prevent such plants from getting extinct & to meet the **demand** for camptothecin, an alternate method of production is highly required. Hence, there is a need to address said issues efficiently.

TECHNOLOGY CATEGORY/ MARKET

Technology: Production of camptothecin**;**
Industry: Therapeutic Industry, Pharmaceutical ;
Application: Cancer Chemotherapy, etc**.**
Market: The global Camptothecin market is projected to grow **$12.54M** by **2028** at a **CAGR** of **10.52%** during the period (**2023 -2028)**;

TECHNOLOGY

- Present invention describes a process for sustainable production of camptothecin in suspension **culture of endophyles from Nothapodytes nimmoniana**.
- The endophytes are fungal strains consisting of ***A. burnsii*** (NCIM1409) or ***A. alstroemeriae*** (NCIM 1408).
- The proposed process involves the production of **camptothecin**, wherein *A. burnsii can* produce up to **150-200 µg/g DW** biomass of camptothecin or **1.5-3mg/L** titer of camptothecin in suspension, & *A. alstroemeriae* (*NCIM 1408*) can produce up to **300- 400 µg/g DW** biomass of camptothecin.

IMAGES

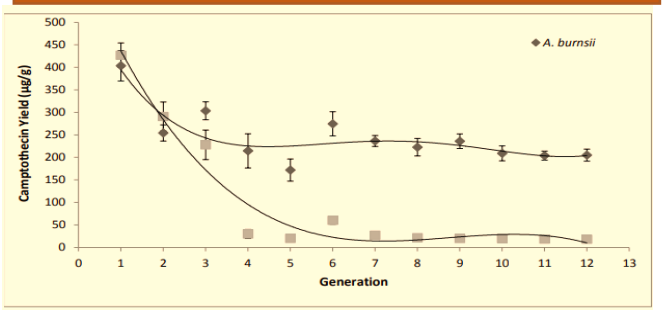

FIG.1: Illustrates a graph representing the generation of camptothecin high yield & sustainable;

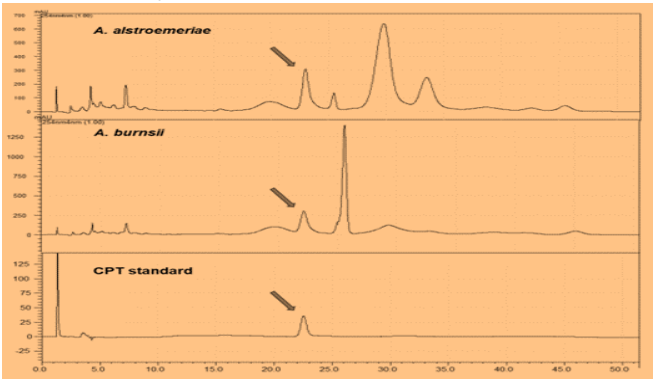

FIG.2: Illustrates a graphical representation of HPLC chromatogram of the isolated endophytes

KEY FEATURES / VALUE PROPOSITION

Industrial Perspective: A high yielding & sustainable, camptothecin producing endophyte and process for producing **maximum** camptothecin from said endophyte shown in figures.

INTELLECTUAL PROPERTY

IITM IDF Ref.: 1761;
Patent Application No. 201841032471
PCT Application. No. PCT/IN2019/050626

TRL (TECHNOLOGY READINESS LEVEL)

TRL- 3, Proof of Concept Ready Stage

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