



SYNTHESIS OF AMORFRUTIN AND CAJANINSTILBENSE AND THEIR ANALOGUES FROM A COMMON BUILDING BLOCK

IITM Technology Available for Licensing

Problem Statement

- **Stilbenoids** are biological molecules that are widely found in **plants and other natural sources** that are reported to have exhibited wide range of properties such as **antioxidant, antibacterial/antifungal activity, anticancer, anti-inflammatory and anti-diabetic activity, antiplatelet aggregation, coronovasodilator activity etc.**
- Conventionally existing technologies are **unable to cater the increasing need of stilbenoids viz. Amorfrutin and Cajaninstilbene acid** for use of various biological activities

Intellectual Property

- IITM IDF Ref. 1132
- IN328436-Granted

Technology Category/ Market

Category – Chemistry & Chemical Analysis; Drugs & Pharmaceutical Engineering

Applications – Pharmaceuticals, Chemicals, Food processing, Antimicrobials

Industry –Healthcare, Chemical

Market –Global demand for Stilbene Market is expected to reach a market valuation of US\$ 0.5 billion by the end of the year 2023, accelerating at CAGR of 5.5% over the forecast period (2023 to 2033)

Key Features / Value Proposition

Technical perspective

- ❑ The novel common building block structure is adapted to effectively **synthesize multiclass compounds of prenylated bibenzyls and prenylated stilbenoids and analogues of the said compounds**
- ❑ Provides an **improved building block molecule structure containing bibenzyl moiety & optimized process** for synthesizing both prenylated bibenzyl and stilbenoids

User perspective

- ❑ Provides easily adaptable process for **medicine/ biotechnology and pharmaceutical applications** for producing molecules containing **bibenzyl moiety with extensive biological activities**

Technology

- ❑ The present invention discloses a **process for synthesis of amorfrutin and cajaninistilbenes and their analogues from a common building block** that can be adapted for synthesizing the chemical compounds such as **amorfrutin (prenylated bibenzyl) and cajaninistilbenes acid (prenylated stilbenoid)**

- ❑ The said process comprising:

• **Alkylating a common building block with various substituted benzyl bromides, (prenylated bibenzyl), desulfonylation & hydrolysis process for synthesizing the chemical compounds amorfrutin (prenylated bibenzyl)**

• **Substituting aromatic aldehydes in the common building block using Juliaolefination and hydrolysis process for synthesizing chemical compounds, of cajaninistilbenes acid (prenylated stilbenoids)**

- ❑ The process of synthesizing amorfrutin is adapted for synthesizing a **series of bi-benzyl derivatives** and process of synthesizing **cajaninistilbenes acid is adapted for synthesizing a series of stilbene derivatives.**

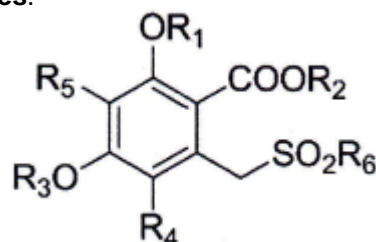


Fig.1 illustrates a general chemical compound structure of the common building block

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Image

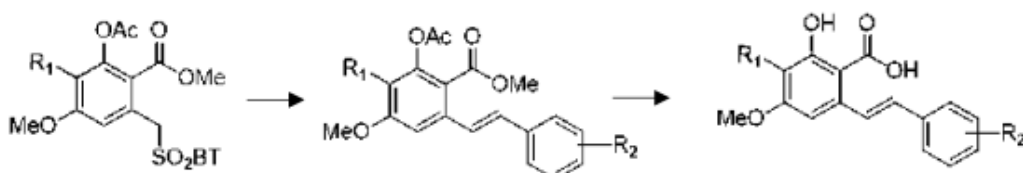


Fig.2 represents the chemical process for synthesizing compounds of **amorfrutin**((prenylated bibenzyl)

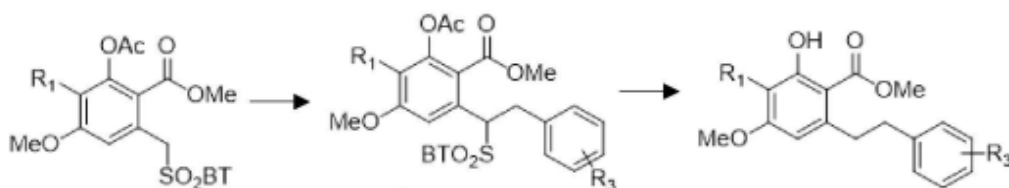


Fig.3 represents the chemical process for synthesizing compounds of **cajaniinstilbenes acid** (prenylated stilbenoids)

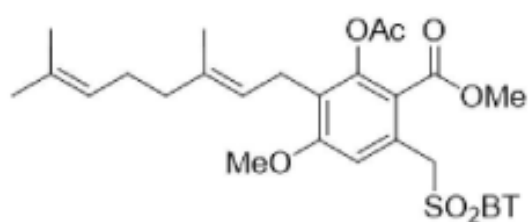


Fig 4 is a representation of Chemical structure of cajaniinstilbenes acid (prenylated stilbinoids)

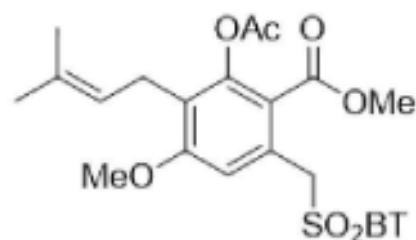


Fig 5 is a representation of Chemical structure of amorfrutin (prenylated bibenzyl)

TRL (Technology Readiness Level)

TRL-3, Experimental proof of concept

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